THE
NATURE AND· PURPOSE
OF
THE MEASUREMENT OF
ƄOCIAL PHENOMENA

BY

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NOTE

THE following pages contain the substance of five public lectures given in the Faculty of Economics in the University of London in April and May, 1914. Though, as will be evident to the reader, the contents do not nearly exhaust the possibilities of the title, it seemed better to offer them in this slight form, substantially as they were delivered, rather than to wait indefinitely in the hope of ultimate expansion and completion, for they deal with matters of immediate importance to social workers and investigators. The illustrations of standards of living are taken from pre-war conditions. It does not appear necessary to modify the analysis of the statistical concept of a nation even though recent events have shown its difficulty and importance.

March, 1915.

LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE.

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INTRODUCTION

CHAPTER I

INTRODUCTION

In recent years a continually increasing interest has been shown in the study of the economic conditions of different classes of society, and a great number of investigations have been made, both by Government departments and by societies and individuals, with the intention of measuring and describing the earnings and circumstances of classes and groups whose standard of living is low or livelihood precarious. This activity may perhaps be dated from the publication of Mr. Booth's *Life and Labour of the People* in 1889, the Labour Commission of 1891, and the institution of the Labour Department in 1893. The time has now arrived to take stock of these activities, to assign their place in an organic

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body of science, to consider from the beginning the general objects and methods of social investigation, and to inquire how far these objects have been or are in the way of being attained.

Though public interest has been directed chiefly to the study of the poor, with a more or less definite hope of eliminating poverty, it is evident that this is only part of the much more general study of society as a whole in all its economic activities and as to all its measurable characteristics. No one class and no one aspect of economic life can be isolated. This study is entitled to be considered a separate science, and might be called simply Sociology if that name had not already been chosen to include the knowledge of all group actions and relations, past and present, measurable or not. In order to limit the science one would have to use such a barbarous title as Modern Statistical Sociology, and these words express adequately the subject I propose to discuss.

Statistics itself I regard as a method rather than a science. If statistics were

studied for its own sake without reference
to its application, it would be a branch of
mathematics—a branch which has had in the
last few years a perhaps over-luxuriant
growth and is ready for the pruning-knife.
•We may distinguish the fields in which the
method is used as those of Administrative
Statistics and of Scientific Statistics; and
we may subdivide the latter into Socio-
logical and Biological Statistics, without
prejudice to the appropriateness of the
method to other sciences.

From the first recorded census, the
collection of statistics has not been to
satisfy idle curiosity but for administrative
purposes ; and, as shown by the late Sir
Robert Giffen in his posthumous work
Statistics, most of the existing periodic
English statistics had their origin in admini-
strative needs and were mainly for depart-
mental use. If they were issued to the
public, the form was so unintelligible that
they added to ignorance rather than to
knowledge. Very gradually a more liberal
view has prevailed, and now most of the
purely administrative statistics are pub-

lished in such a way that their meaning and content can be grasped by very careful readers; while it is now definitely part of the duty of more than one department to collect and publish statistics solely for the purpose. of disseminating information. So· far as this information is not merely to serve some temporary or local need, it should come within the field of scientific statistics.

All scientific statistics have a great deal that is common in method—in the establishment of averages, in the description of variations, and in problems of causation; it is convenient, however, to keep biology separate from sociology, although each borrows from the other in the study of man as an individual, and the two meet on common ground in problems of Eugenics. The problems of sociology are essentially different from those of general biology, and the study of heredity, to which biological statistics have been mainly applied, is only one out of many for the sociologist. We may complete the classification that concerns us by including economic statistics in sociology,

for they always relate to activities of groups, or of individuals in relation to groups.

The general problem of sociological statistics is to define or delimitate and enumerate classes, to specify attributes or characteristics of the members of these classes, to measure these attributes and describe their variation, and to discover relations and causal connexions. In other words, we have to regard society as an organic whole, and give a reasoned quantitative description of all its parts. The purpose of the study is twofold. First there is the purely scientific end of description, of classification and of investigation of causes. Secondly, there is the utilitarian end of obtaining such knowledge of conditions and their relations, that we may be able to modify them with a view to constructing a society more in accordance with some ideal.

The material for this general study that has so far been collected is imperfect and fragmentary in the extreme. As already indicated, much of it comes merely as a by-product of administrative needs. The decennial population census, which affords

the only general view of society as a whole,
is dominated by artificial delimitations of
areas, and limited by the methods by which
its data are obtained both as regards
accuracy and range of information ; it is
further starved and curtailed by want of
money. The reports published by the
Board of Trade, the Local Government
Board, the Treasury and the Home Office
do not form part of any complete scheme,
but are unconnected and sporadic. A
considerable group of unofficial investiga-
tions is subject to personal or political or
propagandist bias ; while the small num-
ber of societies and individuals, who have
set out to discover facts with a simple re-
gard for truth, have worked independently
of each other and only made unconnected
and incomplete surveys. Nevertheless the
difficulties are not greater than those over-
come by scientific investigators in other
fields, who have had to invent their instru-
ments and find, and even capture, their
material below, above, and in remote parts
of the earth. While the social investigator
cannot make experiments, the natural

scientist cannot cross-examine his subjects.
The main task before both is to discover
exactly what is the critical thing to examine,
and to devise the most perfect machinery
for examining it with the minimum of
effort.

Like other investigators the statistician
has to invent his own units of measurement.
The degree of temperature, the unit of
illumination, and the standard of electric-
potential afford familiar illustrations of the
way in which the indefinite is made con-
crete. Electricity is more subtle than
poverty or unemployment, and we should
be able to devise scales for definite measure-
ment of these. The difficulty lies not only
in the vagueness of such terms as health,
fatigue, leisure, but also in the fact that the
subjects of our study are conscious beings
whose feelings of satisfaction and pain are
not a direct mathematical function of any
objective quantities. We cannot evade
this difficulty completely by dealing with a
hypothetical average man, but we can make
our ideas definite by considering how much
a normal person would benefit by an hour's

daily leisure, or 200 square feet of garden.
It may very well prove that some measure-
ments are conceivable and desirable, but
beyond the wit of man, and measurements
of satisfaction are perhaps in this category.
Other computations, which present no theo-
retic difficulty, may be impossible because
they involve the co-operation of many
uninterested or unintelligent persons : for
example, a complete account of the whole
annual income and expenditure of any social
class. Many investigations, however, are
not made, simply from lack of skilled
investigators.

The possibilities of description are not
exhausted even when no unit can be de-
vised, for objects can be placed in order
without any measured scale. The stars
could be classified as of different magnitudes
by choosing a few stars of different bright-
ness and comparing all others with these.
To take an illustration often used, a com-
petent teacher could place a class in order
of intelligence with as much certainty as any
system of examination marks would afford.
If we have thus placed persons or things in

order, we may proceed in either of two
ways. We may assign ˙classes, describe
their characteristics, and then allot an
individual to a class, named either by an
adjective (e.g., poor) or artificially (as 4th
or D class) ; or we may use Galton's method
of percentiles, and having selected persons,
say, one-hundredth, one-quarter or one-
half up the scale, describe these persons by
whatever method is possible.

In reviewing the subjects of statistical
investigation, I propose to limit myself to
those methods which could conceivably
be followed, but not to those which have
been followed or for which statistics actually
exist. If we can define the task of socio-
logical measurement, determine what are
the facts which it is essential to know, and
devise a means of ascertaining them, half
the task is accomplished. In my experi-
ence it is neither a very long nor expensive
business to get the main rough measure-
ments of quantities, though no obvious data
are to hand. Official information, im-
perfect and badly adapted for sociological
purposes as it often is, generally suffices to

show the magnitude, nature and locality
of a problem ; common knowledge, obtain-
able by conversation with those who have
lived in close contact with its circumstances,
will place it in fair perspective ; while a rapid
investigation by sample will give an approxi-
mation to detailed measurements. Very
often this is all that is wanted. If, for ex-
ample, we know from the census account
that in five per cent. of the houses of a town
there are more than two people to a room,
if we ascertain that the worse houses are
insanitary and small, and if we visit a few
to find the actual accommodation, the age
and sex of the inhabitants and their occu-
pations, we have probably all the data we
need for criticizing or suggesting a policy of
reform, without measuring the rooms or mak-
ing a house-to-house visitation. If the more
intensive and extensive inquiry is necessary,
the preliminarry survey will have shown
what is wanted and how it can be done.

I propose in these lectures to examine
systematically some of the general considera-
tions which underlie sociological description.
First we must have a working definition of

a society, which will at once involve us in its relationship to territory. Then we must consider the division of society into classes and the objects of classification. This will lead to the observation of a class as an entity, and of the relationship of an individual to a class, and to the consideration of the importance of the conception of a type, if only because it makes possible the observation of variations from it. Then will follow measurements of the economic activities of classes and individuals, and questions as to what is meant by progress, and how far we can best measure the progress of the class or of the society. I shall not attempt to give any statistics except those which are needed to illustrate some point or show some proportion, nor shall I give any systematic account of what has so far been done. But I hope that the result of the examination will be to appraise, if indirectly, the value, relevancy and reasonableness of the general existing stock of statistical results, and to suggest some lines of further progress.

THE NATION OR SOCIETY

CHAPTER II

THE NATION OR SOCIETY

SOCIOLOGICAL measurements must be of parts related to a coherent whole. We cannot find any clear boundary till we envisage the population of the world at a given date or period. It is popularly supposed that, as the land-surface of the earth is subdivided into political areas, so is the population divided into nations, and that a nation is a natural and convenient group for analysis. A dictionary definition of a nation is " a people living in the same country and under the same government." If we take the United Kingdom in 1911 as an example of a country, we find that 45,221,615 persons were enumerated as being on the land, inland waters and harbours of Great Britain and Ireland (not including the

Channel Islands nor the Isle of Man) on the night of April 2, or on the day of April 3. Of these persons, 44,567,060 were born in the United Kingdom or at sea. Of those enumerated in Great Britain, 217,259 were born in other parts of the British Empire, 75,759 were British subjects born in foreign countries, 23,797 were naturalized foreigners, and 309,569 were foreigners not naturalized; of those in Ireland, 28,171 were in one or other of these four categories.

In 1901 [1] there were also 367,736 persons, natives of the United Kingdom, in the Army, Royal Navy and Marines, or the Merchant Service abroad. There were also 11,184 persons absent at sea in 1911 in fishing-vessels belonging to England and Wales, and an unknown number to Ireland.[2] In the Channel Islands and Isle of Man there were 148,915 persons in 1911. In the rest of the Empire there were in 1901 about 1,652,000 natives of the United Kingdom, and in Foreign Countries there were about 2,929,000

[1] Figures for 1911 not yet available.
[2] Those belonging to Scotland appear to be included in the total already given.

persons known to be natives of the United
Kingdom or British subjects.

It is evident from the bare enumeration of
these categories that the terms " population
of the United Kingdom," " British and
Irish nations," " British subjects,"· are in
no case capable of both exact definition and
exact enumeration.

If we try from other points of view we still
fail to get a clear conception.   The group of
persons paying taxes to the British Govern-
ment includes many who do not reside and
were not born within the Kingdom.   If we
considered those who get their living from
home activities, we should find many persons
living in the United Kingdom who draw all
their income from abroad, many persons
abroad who draw all their income from
here, and many who obtain income from
investments both abroad and at home.
There are, in fact, many people who are
literally cosmopolitans and who can only
be classed as national in some restricted
legal sense, if at all.   Further, there is no
means of knowing exactly at any date any
numbers of persons except those obtained

by enumeration on a defined area.[1] Difficulties of this kind, resulting from necessary complexity of definition and absence of means of enumeration, are so commonly found in statistics that few measurements would be possible if there were no way of escape. The strictest method might be called the " use of the margin of uncertainty." Suppose that the definition has been carefully drawn, and we turn to available statistics, we may find that 10,000,000 persons certainly satisfy the definition, that another 100,000 probably satisfy it, and that there may be not more than 50,000 in addition who may satisfy it for all we know. We should then be able to say that between 10,100,000 less 1 per cent and 10,100,000 plus $\frac{1}{2}$ per cent satisfied the definition, and we could keep this margin throughout any calculation, till we could tell whether it was of any ultimate importance. A less strict method is to elaborate the definition till it includes only the ascertainable (e.g., number

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[1] In France the number of persons " resident " in a commune, but absent on the day of the census, is ascertained ; but great difficulties of definition result, and the total " population du droit " is inexact.

of persons known to be on land in the United
Kingdom on April 2, 1911, and not entered as
non-naturalized foreigners), and use this
limited total instead of one of wider conno-
tation.

There is, I think, no doubt that we must
base our definition of nations or principal
groups for statistical purposes on areas, and
our first enumeration of population as that
of the persons who happen to be on those
areas at any given time ; we can, as a second
process, amend the totals to satisfy a further
definition. Since universal statistics can
only be collected with compulsory powers, it
is necessary to take our major unit as that
under a single government ; in the case of
empires, it is customary and convenient to
take as major subdivisions areas which have
some measure of self-government, but there
will remain such a miscellaneous group as
that formed by the British Crown Colonies.

Territorial Subdivisions.

The lines of division most naturally fol-
lowed by officials who organize a census are
administrative. The kingdom or country

is divided into states or provinces, the states into counties, districts, communes ; and towns and cities either form one of these divisions or are cut arbitrarily out of them. Such administrative divisions are to a great extent accidental. Sometimes the states or provinces are areas formerly independent and bounded by some natural river or mountain frontier, but more often the boundaries have no natural geographical significance. There is nothing to show when one crosses from England into Wales, from Berkshire into Wiltshire, or from Birmingham into Warwickshire, except artificial boundary marks. That Rutland should be a county when it is of the size of two rural districts, that London should include Woolwich but not West Ham, that the Isle of Wight should have a separate County Council, while the Isle of Man has a separate legislature, are as much historical accidents as that the Channel Islands should be British rather than French. In Great Britain the creation of statutory areas goes on apace, and the continued alteration of boundaries to meet the needs of some new

administrative function, or some shifting of
population or some irregularity in the inci-
dence of rates, is the main difficulty that
confronts those who use successive census
reports for comparative purposes. The
area of a modern borough in some cases is
closely covered with buildings, and in other
cases supports a large agricultural and
pastoral population.   Since the date of the
last census the County Borough known as
Birmingham has trebled its area and halved
the density of its population ; Handsworth
is now part of Birmingham, but Smethwick,
with a nearly equal population, remains
separate.   Manchester enlarged its boun-
daries four times between the census of 1901
and that of 1911, but has not included
Salford.

Not only does the administrative separa-
tion of contiguous areas correspond to no
economic or sociological line of division,
but the classification into County Boroughs,
Municipal Boroughs, Urban Districts and
Rural Districts has been made in so arbi-
trary, opportunist and temporary a manner
that the classification has little significance.

Oxford, Canterbury, and Eastbourne are County Boroughs ; Cambridge, Hereford and Cheltenham are Municipal Boroughs the City of Ely is an Urban District. About 155 out of 812 Urban Districts[1] had, in 1911 a density under one person per acre ; about 29 out of 657 Rural Districts had a density over one per acre. These 29 will probably be made Urban before the next census. Meanwhile it puzzles even an administrator to distinguish between Rural Districts exercising some urban powers and Urban Districts many of whose powers are dormant. The same kind of difficulty is found, no doubt, in all growing countries whenever the number of persons is considered in relation to the area of the ground they occupy. For quite rough purposes, for example of visualizing the magnitude of a problem before its study is begun, the administrative classification is of use. London and the 75 County Boroughs of England and Wales (which in the 1911 census are treated, as regards occupations and for many other tabulations, as quite dis-

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[1] Not including Boroughs.

tinct from the Counties with which they are associated) do, in fact, contain a population which is nearly equal to that which would under any definition be regarded as living in great cities ; the Municipal Boroughs and ·other Urban Districts contain the great proportion of the population engaged in industrial and mining occupations outside the County Boroughs, and the Rural Districts contain the majority of persons living in country surroundings. But directly we come to close quarters with any question, for ′ example the extent of the rural population, the administrative divisions fail us.

The most useful areal unit in the census of Great Britain is the smallest for which both population and area are given,[1] viz., the Civil Parish; there were 14,614 parishes in England and Wales and 874 in Scotland in 1911. Even these vary enormously in area and in population, and a parish often includes valley, down and woodland, cutting clean across geographical

[1] In Ireland we can, if necessary, use the 60,679 " townlands " which the country contains. In Great Britain the wards of cities in many cases are smaller areas than civil parishes.

differences. For very many purposes we can use the records for the larger areas as a starting position, and adjust by transferring particular parishes, so that totals may be obtained which satisfy other than administrative purposes. It is unfortunate that the only data we have for parishes are the area, number of families, number of males and of females, and persons enumerated in institutions, vessels, etc., and that when we deal with ages, occupations, births, marriages, and deaths, we must take larger units. Sufficient attention has so far not been paid to the important variations to be found from parish to parish; indeed, few people have had the patience to study separately even the much larger areas such as rural districts.

RELATION OF PERSONS TO AREAS.

CHAPTER III

IN modern times it becomes increasingly difficult to associate a person with an area. Round all towns of any considerable size we find suburbs, detached groups of houses, isolated houses, and superior houses in rural villages, some of the occupants of which earn their living in the town. This inter-mingling of town and country is prevalent in industrial nations generally and increases with every development of means of travelling. Even if we enumerated the day population instead of the night population, it would be. doubtful whether the women and children in the suburbs or urbanized villages should be associated with the land on which they happen to reside, while the workers for gain, men or women, are asso-

ciated with the town.   There is also a large number of nomads, inspectors, commercial travellers and others, who have very little connexion with the area where their families live.   Further, even at the census date, the beginning of April, there are many people temporarily resident at resorts for health or recreation.   If a man earns part of his income in one place, receives dividends from an industry in another, spends his money in a third, and sleeps in a fourth, it is difficult to associate him with any one of them.   He is more difficult to locate than a modern football player.   We must therefore examine more carefully the credentials by which a person can claim to be an inhabitant of a place, and more generally the association between areas and individuals.

Let us return to the territorial idea of a nation, considered as a group of persons occupying, or residing for a considerable length of time on, an area under a single government, the group not being completely homogeneous because of the presence of a relatively small number of foreigners, some of whom are visitors, others of whom will

stay permanently, and because of the absence of a relatively small number of natives who may or may not return. This idea may be contrasted with the following definition given by Mr. G. W. Russell (*Co-öperation and Nationality*, p. 52) : " [A nation] is a single yet multitudinous being, giving evidences of unity and individual character by the power of growth from within which it manifests." This is an organic definition, whereas for my immediate purpose I need an inorganic definition. Of this multitude not far from half are too young or too old for gainful occupation, and another considerable number are engaged in unpaid or paid domestic work ; these are dependent on the owners of property or on the workers for gain. The workers are, with few exceptions, associated with a definite place : if engaged in agriculture or mining, they obviously are bound to the ground ; if in manufacture, their occupational existence is determined by situation in relation to materials or markets ; if in transport, dealing or commerce, they are bound to the national area when concerned in serving the in-

habitants of the territory; while, when they • are directing foreign movements of goods, they have chosen the best commercial and geographical centre for their particular operations ; if in the professions, neighbourhood to the clientèle is essential ; or, finally, they may be occupied in the defence, administration, or government of the inhabitants, their neighbours. In brief, the workers for gain obtain their reward by using the direct or indirect, natural or developed, productive powers of the territory in which they live and work. The owners of property are in the majority of cases also workers, since possession is much diffused in a modern community, and in many other cases are administrators of their property. So far as their property and the place of their occupation are within the same national territory, they live on the productive power of that territory. If there were no other persons, we could extend our definition of a nation to include the phrase " living on the resources of the area " ; but as it is, permanence of residence and areal dependence are, as already said, not co-exten-

sive even in so large a unit as a nation. There is the further difficulty that the same individual may be a worker in one country and owner in that and other countries ; so that a classification by areal dependence would result in fractions of persons. The only practicable definition then is the simplest, namely, that of permanent residence.

✓Classification by Areas.

The relation of the land to its residents is complex and various. We must consider six classes of independent persons : (1) resident workers, (2) non-resident workers, (3) residents whose work is elsewhere, (4) resident owners, (5) non-resident owners, (6) owners whose property is elsewhere ; and then dependants should also be allotted to the class they depend on, or separated as dependent on the State.

There is, I think, no difficulty in theory in classifying all persons in a country or in any defined area under these headings. The income-tax and the census schedules actually contain the great part of the informa-

tion, except the simplest, most easily ascertainable fact as to where a worker is employed. The only difficulty arises from fractional ownership, and this can possibly be met by the device of the margin. Thus the inhabitants of an area are, apart from dependants, mainly resident workers and resident owners ; there is a margin, which can be found, of other workers, and a margin, more difficult to enumerate, of other owners ; there are also margins of non-inhabitants interested in the area. If these margins are broad, residence and areal dependence are not co-extensive ; if narrow, we can interchange the terms. It will therefore be convenient if we can so divide our areas that the margin is small.

For example, if we consider Great Britain, we find that considerable regions do not permit any logical areal classification, namely those parts which are influenced by London, Glasgow, Manchester, Liverpool, and perhaps two or three more of the largest cities ; for in these cases the characteristics of the great city intermingle with the local characteristics of the smaller areas, some of

whose inhabitants travel ‚to their distant
‚work. Any statistics needed for Kent or
Cheshire or Lanark must be compiled in
direct relation to the special purpose needed.
On the other hand, travelling more than‚ say,
five miles to work is very rare among the
working-classes and is only frequent among
other classes in the few great aggregations
of population. In the case of most towns
it would not be difficult to delimitate the
inhabited area on a large scale map, and add
to it the small residential areas of villages
or detached suburbs within bicycling, tram
or train distance where town workers lived;
and it would be a simple investigation to
count how many persons came in habitually
from these suburbs. It would generally be
found that in manufacturing, county and
market towns there were few families not
dependent on the area. The only class
of importance, not enumerated, would be of
those who drew dividends from companies
situated in the area. A town might then
be conceived of as an area covered by build-
ings, roads, private and public gardens,
concentrated for the most part, but with

some detached districts, in which a population lived and worked, and part of whose produce was paid to non-residents. If all such areas are excluded, there will remain the great part of the surface of the country,[1] not covered by any buildings except those needed by the population dependent on the produce of the land or mines. There are, however, in Lancashire, Yorkshire, and the North Midland counties regions of scattered industries [2] which would need special treatment.

In dealing with rural areas a convenient method would be to take together a market town and those parishes whose farmers did their local business there. We should perhaps aim at a statement such as the following :—" The market town of A, together with fifty-seven neighbouring civil parishes, contains 20,000 persons on 97,000 acres ; of these about 1,000 persons in 100 families and two institutions derive the main

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[1] Only one-ninth of the area of England and Wales is contained in Boroughs and administrative Urban Districts, and a very considerable part of this is, in fact, cultivated.

[2] In the West Riding of Yorkshire Urban Districts other than Boroughs cover about 330,000 acres.

part of their incomes from sources outside the
district ; the income so derived is £100,000.
There is no manufacture for export. 20,000
acres, and buildings whose assessed annual
value is £40,000, are owned by non-resi-
dents. The number of persons who reside
in and work outside the district is neg-
ligible."

The corresponding statement for the
United Kingdom as a whole would run in
similar terms. When we have mining dis-
tricts to deal with, we generally find two
working populations (one on the surface
engaged in agriculture, the other occupied
below ground or about the pit's mouth)
who have little in common. They cannot
be readily distinguished by area, unless we
can mark out the actual space occupied by
miners' and superintendents' houses ; and
we cannot distinguish the professional and
trading classes who work for the one group
rather than the other. We could still, how-
ever, treat the district as a whole if any
useful purpose was served, when the
distinction between mining and agricul-
ture was ignored.

The general result of this analysis is to show that in a country which has developed⟨ in agriculture, mining, industry and commerce, there are no general clear territorial lines ˙of division except those artificially drawn for administrative purposes. But we can pick out and describe in terms of the relation (other than residential) of people to area a considerable part both of the urban and of the rural population. Most of the information needed for such description exists, though some of it is in the hands of officials in a confidential form and cannot at present be used.

When we have decided what areas can be best treated as separate entities and enumerated their population, there are ˙three evident methods of comparison. We may tabulate the areas with particular characteristics, contrast the rural with the urban, and notice the proportion between them in this and other countries, if we can standardize our definitions. Or we can tabulate the populations of the chosen areas and give a reasoned account of the distribution of the population in

regions, or in towns and country. Or we
can make comparisons by combining the
measurements and deal with the density
of the people.

As regards the first two methods, I have
only to remark that it is nearly impossible
to get a definition of urban as opposed to
rural population[1] or area, that applies
to more than one country; we have
already seen how the problem varies in
different parts of the United Kingdom; and
if we had framed a definition, we should
find that the existing statistics of various
countries would not make its application
possible. All that can be done in this
direction is to accept whatever is the
current definition of rural areas in a country,
and notice how the area and its popula-
tion changes from time to time. It is
a well-known maxim of statistics that
we can study changes even when the
definition or the enumeration is faulty.
We can thus accept the statement that
in most countries the urban population

[1] See "Rural Population in England and Wales,"
Statistical Journal, May, 1914.

has in recent decades grown more rapidly than the rural, without even knowing the method by which the two are distinguished. We can further use any properly completed census for studying and even making a map of the spatial distribution of the population, if we simply have an adequate delimitation of boundaries and know the numbers inhabiting each district ; the only hazard, then, arises from the difficulty of distinguishing permanent from temporary residence.

Density of Population.

The density of population involves further conceptions. It is, of course, a matter of simple arithmetic to divide the number of persons recorded by the number of square miles in the district which they inhabit ; the difficulty is to attach meaning to the quotient. We have, in fact, two heterogeneous totals, and the items of the one have a varying relation to the items of the other. The population total includes male and female, old and young, workers, owners and dependants. The

areal total includes fertile and barren
acres, mountainous and plain, metalliferous
and valueless, urban and rural. The rela-
tionship may be one of accidental resi-
dence or of complete dependence on the
products of the land. Before we take
any average we must make sure that all
the members of the numerator have some
common characteristic, and that all the
members of the denominator have another
common characteristic, and that these
characteristics have some relationship to
each other. When we say that the density
of the population of England and Wales
was, in 1911, 618 per square mile, the only
things in common are that the persons
were present at a particular date on an
area which is subject to a certain uni-
formity of government. When we say
that the density of the County Borough
of Manchester was 21,100 and that of the
Rural District of Burnley was 315 per
square mile, we are dealing with popula-
tions which do not consist simply of those
persons whose interests are involved in
the districts, and with accidental adminis-

trative areas whose boundaries have changed in the last ten years.   On the other hand, when we say that the average weekly earnings of adult male cotton operatives in England were about 29s. 6d. in 1906, we have complete homogeneity in the numerator, since the coins are actually interchangeable, and the important common characteristic in the denominator that every person enumerated is working for hire in one strongly localized industry.

The most definite plan is to consider what relationship we wish to measure. The two generally considered are the suitability of the land for direct or indirect production of the means of living, and the sufficiency of space for health.   Our former analysis gives the material for the first, for we have already considered the computation of the number of people dependent on an area.   National comparisons, such as that the United Kingdom, Belgium, and the United States support populations whose densities were respectively 342, 589, and 21 per square mile in 1900, have a certain utility in calling

attention to differences ‹which need ex-
planation. The differences are in these
cases so great that the margin of vague-
ness as to the meaning of " support " are
unimportant. But if the explanation was
simply that part of the area included was
useless for agriculture, mining, industry,
commerce, or health—that, in fact, it did
not contribute to the support of the inhab-
itants—it is evident that the statement
as to density would have no further mean-
ing. When we take smaller divisions, the
simplest relation is with agriculture. In
primitive times we might have said that
so many persons were actually fed per
square mile, as we might say that a 100
acres would carry thirty head of cattle ;
but now we must regard rather the number
of persons who get their living directly
or indirectly by the cultivation of given
areas. Similarly for mining areas we can
conceive such a statement as that the pro-
ducts of the mines provide incomes for
so many people per square mile, but the
statement would obviously have little
utility. Still less meaning would be ob-

tained by reckoning the number of persons who earned a living per acre of a town, however carefully we defined urban area. From this point of view density is, then, of use mainly, if not solely, for considering the number of people supported by consumption or sale of pastoral or agricultural products. Even then we must pay attention to the homogeneity of the denominator. Thus the rural districts of an English county (for example, Devon) may contain very fertile and very barren regions ; if we include the whole, we shall be mixing a measurement of the variability of the soil with that of the adequacy of its cultivation. If, however, we take a homogeneous area, we may usefully compare the density of the population dependent on it with either that of another area of the same general nature or with that of another homogeneous area of a different nature. We may thus, if we have expert knowledge of agriculture, obtain material for considering the intrinsic value of the soil, or the adequacy of its cultivation, or whether it is fully populated ; but we

should have to devise further means for
distinguishing between these possible
causes of difference of density. The sta-
tistics obtained would need to be placed
in relation with those of occupation and
of production, with which I do not propose
to deal now.

The measurement of urban density and
its relation to health is very complicated.
It is futile to compare, for example, the
density of Birmingham (39 per acre in
1911) with that of Bristol (21 per acre),
if only because the boundaries are acci-
dental and changing, and so by an adminis-
trative order the quotients are altered.
There are the further and more important
reasons that the denominators are not
homogeneous nor similarly related to the
total. Each city contains not only areas
devoted to industry and commerce, but
also to agriculture, and the area of residence
is a nearly undefinable part of the whole.
In parts of the cities the houses are crowded
among factories, in other parts they stand
in large grounds hardly separated from
the open country. To be useful, the study

of density in a town must be intensive,
and such small areas should be taken that
the actual air space available for the inhab-
itants by day and night may be known.
Evidently the freedom of movement of
the air within and without the house and
the construction and grouping of houses
are of as much importance as the actual
space, and thus many other factors must
be considered as well as density. If we
had established such a standard as that
under the best conditions of building a
density of over 100 per acre was too great
for health, we could then use it for selecting
small districts which approached or ex-
ceeded this standard, and examine these
more closely from other points of view.

This use of an average in suggesting
fields for special investigation is common
in statistics. Of itself an arithmetic aver-
age is more likely to conceal than to
disclose important facts ; it is of the nature
of an abbreviation, and is often an excuse
for laziness. The discovery that there
are differences between the averages of
apparently similar groups, however, very

generally makes the first approach towards differentiating these groups ; while the movement of an average in a period necessarily shows that either general progress has been made in some direction or* that the relationship of the parts to the whole has changed, and in any case that there is a problem to be solved. The general questions of the accuracy of averages, their relation to types and their uses, belong to statistical technique, a subject which I propose to avoid as far as possible in the present discussion.

CLASSIFICATION OF THE MEMBERS OF A NATION

CHAPTER IV

CLASSIFICATION OF THE MEMBERS OF A NATION

Preliminary.

LET us now take for granted that we have an adequate conception of a nation and of other territorial groups, and proceed to consider the classification of individuals within the group.

✓ The general problem of classification can be approached in either of two ways. We may decide *à priori* the nature of the classes—such as occupied or unoccupied— engaged in extractive, industrial or commercial pursuits; or we may examine the material—in this case the individuals of a nation in their economic and social activities—and discover whether they fall into distinct groups, each with recognizable

characteristics. ' In practice the classifica-
tion is likely to be determined finally by
the use of both methods. One test of
success will be whether, when we have
chosen our classes by one criterion, such'
as wealth, we find that the groups are
homogeneous in other respects, such as
kind of work, social position, average
size of family, and so on. The general
character of the classification will be
determined by the purpose for which we
wish to regard the nation part by part
instead of as a whole. We may, then, take
the general problem before us to be the
determination of those characteristics of
the individuals of a society which lead
to aggregates markedly distinguished from
one another and of a kind that can be
described numerically.

Society may be regarded from many
points of view, and a description from
any of these is likely to be of use.
The most obvious lines of division are
by sex and by age; the next are by
" civil condition," as unmarried, married,
divorced or widowed. These divisions I

shall only discuss as subordinate. They present little difficulty in definition and (except in the category " divorced ") the statistics relating to them are clear and adequate. We could equally well conceive of a nation as made up of families, if we could so define a family, that the aggregate of families was co-extensive with the aggregate of individuals.

Another possible line of division for individuals is between dependants and independants, and this can be applied in families as well as in communities. The definition is, however, complex. Independants can conceivably be classed as owners or workers, employers or employed. We may also use economic ideas of classification, and speak of landowners, capitalists, entrepreneurs, and employed, and we could divide the latter into clerical and manual, skilled and unskilled.

Starting afresh, we can classify the population as unoccupied or occupied, and group the latter according to the nature or to the purpose of their occupation. /

Again, we may classify either individuals

or families according to rank or social standing, if we can devise any definitions or measurements.

Finally, we can group individuals or families according to their income. ·

In most of these methods there can be an indefinite number of subdivisions. If any one classification is taken as the principal, the others can make cross-divisions.

✓ Whatever class we take in sociological inquiry, we should always place it in relation to a general scheme of classification which embraces the nation (or other major group) as a whole. Thus, if a study is made as to the economic position of, say, waitresses, they should be regarded as defined somewhat as follows:—British, women, occupied, hotel and restaurant service, waitresses. Otherwise they are regarded as an isolated group, not as part of a society.

Industrial Classification.

✓ The *à priori* method is the most appropriate for industrial classification, and

the division is naturally by function. There is the special difficulty, however, that an individual may exercise two or more functions analytically distinct, as when he is an employer in two industries or an owner of capital and also an employer.

The cases where a person is occupied in two industries at the same time are rare,[1] and where they occur one is often unimportant. Occupation will, then, give nearly clean lines of division, 'if we can get a satisfactory definition. There is no evident line separating occupied and unoccupied, and we must proceed by delimitation of a scientific frontier between these classes. Taking an economic standpoint, we may limit the word by saying, "Occupied in the production of utilities or the rendering of services." We must, then, for classification decide the regularity, duration, or continuity which amounts to occupation, but this must remain arbitrary, or lead to classification by grades, as "occupied six, five, four days a week." Whether

[1] There are many cases of different occupations in different seasons.

SCHEME OF CLASSIFICATION.

Discussed pp. 55–82.

Classification by degree of occupation.

1. Occupied in production of utilities or in rendering services for profits or wages, during normal hours.
2. Occupied in production of utilities or in rendering services for profits or wages, during part of working hours, and (*a*) also doing domestic work at home, or (*b*) completely leisured at home.
3. Completely occupied in domestic work at home.
4. Partly occupied at home and partly leisured.
5. Unoccupied, (*a*) below school-leaving age, (*b*) past work, (*c*) others.

Analysis of nature of occupation.
  1. Employed.
    (*a*) Whenever occupied for gain and
        (i.) not employing others,
        (ii.) employing others.
    (*b*) In part of occupations for gain and
        (i.) not employing others,
        (ii.) employing others.
  2. Employers and direct workers.
    (*a*) Directing, not making.
        (i.) At will, for client.
        (ii.) Under general instructions.
    (*b*) Directing and making.
        (i.) At will, for client.
        (ii.) Under general instructions.
    (*c*) Making without help.
        (i.) At will, for client.
        (ii.) Under general instructions.

Analysis of condition of employment.
  1. Directing.
  2. Under orders, (*a*) Clerical, (*b*) Manual, subdivided by degree of skill and responsibility.
  Cross-division, (α) Learners, (β) With completed knowledge.

Classification in relation to dependence.

1. Dependent, (*a*) entirely, (*b*) contributing part of cost of keep, (*c*) contributing special cost.
2. Independent, (*a*) contributing special and general cost, (*b*) not living in family.
3. With dependants.

the material commodities are produced
for use by the producer or for sale is per-
haps not of importance in the classification,
and at any rate the number of persons
who are regularly occupied in producing
goods of which they consume the major
part themselves is very small in a modern
community. Services give much more
difficulty, for the bulk of domestic services
and of indoor family work can be done
individually, or in family co-operation,
or for hire. It is quite common for a
working-class woman to give part of her
day or week to her house and part for hire
to another person's; and the majority
of women who are employed in industry
also do at least part of their own domestic
work. On the other hand, there are rela-
tively few grown girls or women who do
no domestic work at all, though they
are unoccupied in the ordinary sense.
/A classification that might prove sufficient
is—(1) occupied during normal working
hours for profit or wages; (2) so occupied
during part of working-hours, and (a) also
doing domestic work at home, (b) com-

pletely leisured at home; (3) completely occupied in domestic work at home; (4) partly occupied at home and in part leisured; (5) unoccupied, (*a*) below school-leaving age, (*b*) past work, (*c*) others. Cross-divisions throughout should show whether married, widowed or not, and number of children of school-age and below school-age.

The following table shows how far this classification was carried out[1] for women and girls in the census of England and Wales for 1901, and in the table of occupations in that of 1911:—

	1901.	1911.
Total female population .	16,799,230	18,624,884
Engaged in occupations :		
Unmarried . . .	3,254,242	3,739,532
Married } . . .	917,509 {	680,191
Widowed }		411,011
Without specified occupations or unoccupied :		
Under 15 years . . .	5,079,088	5,337,335
Over 65 years . .	733,349	946,614
15–65 years :		
Unmarried . . .	1,426,925 }	
Married } . . .	5,388,117 }	7,510,201
Widowed }		

The census, then, leaves us without knowledge as to the details for the suggested

More detail by ages is given in the reports.

classification for two-fifths of the female population. Common knowledge is, however, sufficient to establish the statement that the great majority of the seven and a half million girls and women between fifteen and sixty-five years spend much of their time in domestic work, and that the bulk of the families of the country do not and cannot afford to support more non-earning women than are necessary for carrying on the household. Various private investigations, now nearly completed, will throw more light on this question. The number of unoccupied men between the ages of fifteen to sixty-five was 411,278 in 1901, and 424,847 in 1911, in England and Wales. It should be remembered that the census depends on unverified statements by householders.

In searching for main lines of division between occupations, statisticians have found that the clearest were those which separated the materials which are handled in manufacture (as Metals, Wood, Clay, Animal Products, etc.), but even so the purpose of the manufacture has influenced

the British classification, for we have
Order XIX (Dress) and XX (Food) both
containing workers in animal and veget-
able substances, and Order XII (Building
and Construction) containing workers in
vegetable and mineral products ; and even
so, Order XXII is necessary to include those
who do not fit into the others, while Order
XVII has to contain Printing on, as well
as the manufacture of, Paper.   In general
Orders X to XXI represent manufacture,
and Orders VII to IX the extractive indus-
tries (Agriculture, Fishing, Mining).   Order
V contains Commerce, but a great number
of dealers are placed under the manufactur-
ing Orders. Before Commerce we find
Professions, before Professions the Army
and Navy, and in the first Order, General
and Local Government.   Domestic Ser-
vice is awkwardly placed between the
Professions and Commerce.

ENGLISH CENSUS.	BERTILLON.	FRENCH CENSUS.
		A. Population active
VII Agriculture⎱	1. Agriculture .	⎰ 1. Peche.
VIII Fishing ⎰		⎱ 2. Forêts et agri-culture.
IX Mines and Quarries	2. Extraction .	3. Industries ex-tractives.

X–XXI	Industry .	3. Industrie .	4. Industries de transforma- tion.
VI	Transport .	4. Transport .	5. Manutention et transport.
V	Commerce .	5. Commerce .	6. Commerce, spec- tacles, banque
II	Defence .	6. Force publique	9. Services de l'État, des de- partements ou des communes
I	Government	7. Administration publique .	
III	Professions	8. Les professions libérales	7. Professions libérales, cultes.
IV	Domestic .	10. Travail Do- mestique	8. Soins personels, service do- mestique.
XXII	Miscellan- eous	11. Désignations génerales	
XXIII	Unoccupied	9. Les personnes vivant de leur revenus 12. Inproductifs Profession inconnue	B. Population inactive.

The Orders X to XXI in the English census are respectively :
Metals ; Precious Metals ; Building and Construction ;
Wood ; Brick, Pottery, Glass ; Chemicals, etc. ; Skins, etc. ;
Paper and Books ; Textiles ; Dress ; Food, Tobacco, Drink,
Lodgings ; Gas, Water, etc.

It is evident that this classification lacks system and purpose, and it necessarily leads to curious results./ The official post-man is occupied in the General Govern-ment of the Country (Order I) ; if he is a private postman he is in Domestic Service (Order IV) ; a bank-messenger and a telegraph clerk are engaged in the convey-ance of Men, Goods and Messages (Order

VI) ; a library messenger is among the Professions (Order III). A porter may be found in Orders I, III, IV, VI, or XXII. In former times a doctor has been indistinguīshable from a veterinary surgeon, a veterinary surgeon from a blacksmith, a blacksmith from a whitesmith, a whitesmith from other metal workers.

M. Bertillon, in a report presented to the Institut International de Statistique in 1889, justified a classification (on these general lines) as follows [1]:—

" (A). L'homme se procure les matières premières nécessaires à toute profession, soit par l'exploitation du sol [2] (I. *Agriculture*), soit par l'exploitation du sous-sol (II. *Extraction de matières minérales*) ;

" (B). Ces matières premières sont ensuite transformées par l'industrie (III. *Industrie*), portées à l'endroit où elles sont demandées par les moyens de transport (IV. *Transport*) et distribuées entre les consommateurs par le commerce (V. *Commerce*) ;

" (C). Pour veiller au bon ordre et à la sécurité des professions qui précèdent, chaque pays possède une armée et une gendarmerie (VI. *Force publique*), une *administration publique* (VII). Les *professions libérales* (VIII) *et les personnes vivant de leurs revenus* (IX) trouvent tout naturellement leur place à la suite des professions que nous venons de passer en revue.

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[1] Quoted from *Cours élémentaire de Statistique Administrative*, 1896. Bertillon, p. 197.

[2] In the subdivisions Fishing is included in this Order,

" (D). Enfin, il convient d'établir trois divisions professionelles pour les individus non classés ou sans profession."

D contains X, *Travail domestique* ; XI, *Désignations générales sans indication d'une industrie déterminée*; XII, *Improductifs, Profession inconnue.*

✓The International Institute approved this classification, and the 499 subdivisions to which it leads, in 1893.

The main grouping actually adopted in the French census is shown on pp. 60-1.

This classification (apart from the fact that persons living on their own means are regarded as akin to the members of the Liberal Professions instead of among the Unproductive) is at first sight systematic enough ; but as soon as one comes to details, it is seen to work out in quite an arbitrary manner. Public administration is getting more and more entangled with the direction of industry, and direction is not distinguished from employment in the subdivisions. Transport is hopelessly confused with processes of manufacture, and is not confined to taking goods to the places where they

are to be consumed. There is no evident
room for the carriers of messages (which
are not raw materials transformed), for
the provision of amusement,[1] and many
other occupations not based on raw mate-
rials. The absence of any definition of
occupation makes it not surprising that
married women are catalogued under *Tra-
vail Domestique*, and persons temporarily
out of work as unoccupied.

In the 1911 census of Great Britain a
new classification is prepared in addition
to the old, under the rather awkward dis-
tinction of Industry or Service as contrasted
with Occupation. Here the main idea
seems to be to classify persons according to
the final object of their work, instead of by
the materials they handle. The structure
is built up of groups in common employ-
ment, instead of groups in similar occu-
pations. Thus the cotton industry includes
commercial clerks, carpenters, fitters, car-
ters, porters and messengers, and others

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[1] In the English census, an organ blower and a
theatre programme boy are in the Subordinate Services
of the Professions.

permanently employed by cotton firms, as
well as those actually handling cotton. All
persons employed by Local Authorities, e.g.
road-labourers, gardeners, etc., are classed
under " Municipal, Parish, and other Local
or County Service " This is, of course,
only a modification of the former method,
but it proceeds on a more definite system.
Its great advantage is that it is readily
used in conjunction with the inquiries
whose data are obtained from employers,
such as the 1906 inquiry as to Wages and
the 1907 census of Production. Where the
investigation is by sample, as in the former,
the whole numbers to which the results
apply will be known. Where the inquiry
is intended to be complete, as in the latter,
a test of its sufficiency will be afforded.
Obstacles will, however, remain. As govern-
ments extend their industrial activities,
and as they employ more and more pro-
fessional men, we shall find greater difficulty
in computing the number of doctors, trans-
port workers, suppliers of electricity, and
so on, whenever we are not concerned with
the status of their employer. This can be

overcome by a division for every industry concerned ; thus :—Engaged in Transport : (a) by private firms, (b) by government, (c) total.

The best service that census compilers can render to the economist or sociologist is to publish the data in such minute detail that groupings can be made for any definable purpose. The difficulty is the practical one of the size and expense of the volume. The actual published arrangement and sub-totals may be made to suit administrative needs in the first instance, if the system is readily intelligible and the titles without ambiguity.

We have still to consider the purposes that can be served by a sufficiently complete census of occupations. The most evident is the measurement of the extent to which a nation is engaged in or dependent upon particular industries; for this the statistics of occupation can be taken with the Census of Production. But this purpose and classification is outside my present subject.

A second end is a classification of individuals according to their economic function

Unfortunately, from the point of view of simplicity, we cannot separate out a class of capitalists or of landowners ; for ownership of capital apart from its direction, and ownership of land apart from its use, are not occupations, and very many owners have an occupation under which they can be classed. In order to include the whole nation, we must place every one in a category of occupied or of not occupied. The latter may be divided as living on the proceeds of property or dependent on owners or earners, but an intermediate class, or a grading, would also be necessary for those who were dependent for part of their income and owners in respect to the rest. Census statistics are capable of giving the numbers in the unoccupied class, but only partial estimates for the division into owners and dependants.

For those occupied the most obvious division appears at first sight to be between employers, employed, and workers on their own account, but in fact the categories are not mutually exclusive. Many people employed in industry are themselves em-

ployers of domestic servants ; these we may readily decide to class as employed, basing our classification on the function by which income is obtained. A greater difficulty is in the case of those who work alongside their employees, not only directing but also making. Perhaps we could evade this by enlarging the employer class to contain the whole group, and thus have a simple dichotomy, (1) those who obtain their income by carrying out other persons' instructions, and not working directly for clients or customers—briefly, the employed —and (2) those who obtain their income by providing goods or services, with or without assistance, at their own will and with immediate relations with their clients or customers. Even so, many persons would belong at one time to the one class (as when a jobbing gardener was working for a day for an employer), and at another time to the other (as when he was planting his own garden for produce for the market). Thus, as is generally the case in classification of persons, we must either make an arbitrary delimitation instead of a definition

by function, or allow for an intermediate class in which a continuous grading may exist according to the varying proportion in which the attributes of the two classes are mingled.

If we consider more closely the meaning of "employed," we come to a further difficulty. If we take employment, in this connexion, to mean the carrying out another person's instructions for the sake of reward, we find that A carries out B's instructions while B is acting on C's instructions, who in turn takes his orders from D. A, B and C would all be employees, but B and C would also, in fact, be employers. Cases occur, for example, in coal-mining and ship-building, where D does not even know the number or persons of his sub-employees (B and A), does not engage or dismiss them, and is not responsible for their wages. In such cases we might decide that, none the less, D should be one category, though it would need such a phrase as that given above (p. 68 (2)), rather than simply the word "employers," to describe it; and A, B and C should be in another,

which might still be called " employed."

It may be suggested that a criterion might be found in the condition that an employee is entitled to his reward, if he carries out his instructions, whether the goods he handles are sold or not, or bring a profit to the employer or not. This would make a good supplementary test for some cases, but would afford a legal rather than a functional definition. With all these tests there would remain undecided the case of men who undertake contract work, as in quarrying ; here they may bargain for the price at which a particular rock will be worked, and undertake the whole direction and employment of labour for the purpose. They are carrying out general instructions, and secure of their payment, but how they should be classed depends on the terms of their contract and the terms of the definition.

ʃThe solution of difficulties of this kind is to choose that definition for the main division which will leave each class as homogeneous as possible—i.e. with as many common characteristics, other than that

implied in the definition, as possible—and then to subdivide each class into as many species as may be needed for any special purpose or suggested by the definition. Thus, if we take the definition just discussed, we should have (1) Employed : (a) Whenever occupied for gain, (b) In part of occupations for gain, with cross-divisions: (i) Not employing others; (ii) Employing others; and (2) Employers and direct workers, (a) Directing, not making, (b) Directing and making, (c) Making without help ; with cross-divisions: (i) At will, with immediate relations with client, (ii) Under general instructions. ✓

The most populous species are, of course, "Employed, whenever occupied for gain, and not employing others," and "Employer, directing, not making, at will, for client."

The Census of England and Wales has distinguished for some time between the classes Employer, Employed, and Working on own Account.

The German industrial census has a more complicated system of division, as follows

[Adapted from *Statistisches Jahrbuch für das Deutsche Reich*, 1913, p. 13.]
Berufsgliederung der Bevölkerung nach den Berufs-
zählungen von 1907.
[ooo's omitted throughout in abstracting.]

I. Hauptberuflich Erwerbstätige insgesamt   26,176
Berufsstellung der hauptberuflich Erwerbstätigen
   a. Selbständige 6,049
   b. Angestellte :
      1. Technische Betriebsleiter   171⎫
      2. Aufsichtspersonal .   272⎪
      3. Verwaltungs- Rech-   ⎬ 1,588
         nungs-Personal . . . 323⎪
     [4. Andere . . . . . . 822]⎭
   c. Arbeitskräfte :

                ⎧1. Mithel-
                  fende
                  Ange-
                  horige   4,288
  Lohnarbeiter ⎨2. In ge-   ⎬ 18,539
                  lernter
                  Arbeit   6,916
                ⎩3. In un-
                  gelernter
                  Arbeit   6,016
     [4. Andere   1,319

II. Bei den hauptberuflich Erwerbstätigen
   lebende.
   Dienende   1,042
           ⎧unter 14 Jahren   18,740
  Angehörige ⎨14 Jahre und
           ⎩ darüber alt   9,807
                       ————— 29,589

III. Berufslose Selbständige.   3,405
   [Bei ihnen lebende]
     ⎧Dienende   202
     ⎨Angehörige ⎧unter 14 Jahren   643
     ⎩   ⎨14 Jahre und darüber
              ⎩ alt   925
                       ————— 5,175

                         60,940

This differs from the total population by the omission of the Army and Navy, and apparently of about 21,000 servants.

In the category " Employed," the classes that suggest themselves from observation of businesses are managers, clerks, foremen, skilled workers, unskilled workers. The corresponding lines of division would be between direction and carrying out orders, clerical work and handling materials, and grades of responsibility and skill. We do not, however, arrive at definite separations of individuals, even if we can separate functions. In a small business a paid manager does much secretarial and accounting work ; foremen in large factories do much of the work done by managers or even employers in small concerns, while in other cases the foreman is only the leading workman. On railways the same man often does the clerical work of booking-up parcels and the manual work of loading them for the train. Skill is composed of so many constituents—intelligence, experience, knowledge, physical ability, trained technique—required in such different proportions, that, again, it is no simple task

to grade or measure it. A navvy may be much more skilled than a carpenter ; a ploughman needs a longer training than a plasterer. It is, I think, futile to attempt any universal definitions, and necessary to take industry by industry, and classify the various occupations on broad divisions with a margin of uncertainty, so far as to distinguish salaried management from subordinate work, and clerical from manual work. As regards subdivisions, the classification of clerks has hardly yet been attempted. The classification of manual workers must follow the custom of the trade, and hardly any test can be applied for degrees of skill except that of relative height of earnings (which is not necessarily determined by skill in the ordinary sense). In completing the account of employed we must leave room for apprentices, improvers, and other learners, either in a class by themselves or as attached to the occupation which they are learning.

Classification of degree of dependence.

Let us now return to the nation as a

whole, and consider the main divisions between owners, workers and dependants, and the relations between the dependants and the others. / This will cut across the divisions by occupation, since workers are not necessarily independent. We are at once led to the study of the household and the family.[1] The best way to obtain completeness is to allot every individual to his most permanent place of residence, and then to make observations by places of residence.[2] / The group in a household or tenement consists of the householder or occupier (the person responsible for the rent and rates), his relations, adopted relations (and rarely permanent visitors, unrelated, living as members of the family), lodgers and servants.

A study of the households of Reading, Northampton and Warrington[3] shows how

[1] Before the analysis which follows we will suppose all persons in institutions dependent on public relief or charity classified separately, or all included in 1 (a) p. 56, " Entirely dependent."

[2] This ignores for the present gipsies, professional tramps, etc., and leaves sailors, bargemen, etc., not definitely placed, unless they are domesticated between their journeys.

[3] Here and subsequently reference is made to detailed inquiries in 1912–13 as to social conditions in Reading, Northampton, Warrington, and West Stanley (Durham).

gradually these classes shade one into the
other. Lodgers may hire unfurnished rooms
and do for themselves (in which case they
may be classed as in separate households),
or share a sitting-room or even a bedroom
with the family; they may have their food
in separate rooms or out of doors, or with
the family, or breakfast alone, dine away,
and sup with the family. A very usual
arrangement is to have a separate bedroom
and feed at the family table. A plausible
definition of a lodger would thus be a
person who pays an agreed sum for house-
room, with or without food and services,
but in fact that would not separate him
from a grown son who pays a fixed sum to
the householder and is quite ready to go
into lodgings if he is not comfortable. The
distinction by relationship does not readily
help, for we find sons, stepsons, adopted
sons, nephews, sons-in-law (widowers),
grandsons, fathers, uncles, stepfathers and
fathers-in-law—in every degree of relation-

The results of the first-named were published in the
Statistical Journal, June, 1913. All have been issued
in book form under the title *Livelihood and Poverty*
(G. Bell & Son).

ship by blood or marriage—as persons who pay for room and food. Often the payments are irregular in amount, quite apart from debts. In the case of sons and daughters there is every variety of method, from the paying in the whole of small earnings, insufficient for expenses, as when a lad earns 3s. a week, to the paying of 12s. a week out of a wage of 30s. In practice an arbitrary line has to be drawn, including all near relations as members of the family, and others as lodgers.

A similar difficulty occurs in classifying domestic servants. Relations often join a household, receiving room and food for nothing, or at cheap rates, in return for general help in the house and with the children; there is every grade from this arrangement to completely paid service by a stranger who has her meals apart.

It seems hopeless to try to discriminate between the companion, the lady help, the governess, the nursery governess, the nurse, and so on to the scullery maid, when as we observe household after household we find

all or any of these offices may be merged, and be undertaken with or without pay by near or distant relations. A working rule can be made by counting (as in the case of lodgers) near relations as members of the household, and other paid persons as in service.

Having separated the members of the household from lodgers on the one side and servants on the other, we can count lodgers and servants as independent,[1] and consider the mutual dependence of the household. The members can be classed as not contributing to the expenses, contributing less than their cost, contributing exactly their cost, and contributing more; but it is important to distinguish between a full share of all expenses (special costs and general costs) and the mere payment of a sum equal to that which would be saved if the member left; a share in a bedroom and a place at meals cost the householder very much less than an aliquot part of the whole

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[1] There remain the cases when a lodger is partly or wholly dependent on another household, or on public relief.

expenses. Strictly speaking, a person is not independent if she can only pay her expenses when she is a member of a household already running for other purposes; but trades which depend on the existence of such persons are not parasitic, any more than a dog which sleeps in a stable for warmth is a parasite of a horse. It seems best to class such people as independent. Next come those who pay part of the general expenses as well as their special expenses, but not more than an aliquot part, if any arithmetic could be devised that would debit each member with a suitable share of the general expenses. Whereas the payment of special expenses begins almost directly a working-class child leaves school, it may be a few years before his wage pays a full share of expenses, and a further time before he would be acceptable as a lodger elsewhere. It was very noticeable in the Reading inquiry that when one elder child is at work the family is not below the poverty line, unless there are three or more dependent children; and, roughly, each earning child in addition allows room

for one more dependent. The partly dependent class is relatively small. It contains those incapacitated by illness, age, or dullness from regular earnings ; wives who occasionally go out to work ; the young who are learning a skilled trade ; young women of all classes, except the poorest, who work for dress and pocket money ; beginners, idlers, and incapables of the richer classes, who receive an allowance to supplement their earnings, which are inadequate for their conventional standard.

There remains, on the one hand, those who earn nothing, whether they are infants, school children, idlers, totally incapacitated, occupied but not for gain, or occupied in domestic work, and are completely dependent, and on the other, those who earn more than their general and special share of household expenses. Of the latter, some pay a fixed sum to the household, and their economic relation is much the same as if they were lodgers, with some profit to the housekeeper ; these are the grown sons and daughters and relations ; others pay over a larger sum, definitely to help the depen-

dants. Frequently in the working class, and sometimes in richer classes, the husband gives all his earnings to his wife, and receives pocket money ; in other cases he pays a fixed sum weekly for the household to manage on.

With the very great variety of constitution of households there are very many different kinds and degrees of dependants, but they generally fall into three main divisions. First, where there is an adult male householder in full working-vigour (in nine out of ten working-class households in the four special inquiries), it is generally the case that non-working children are dependent on him alone ; secondly, where (in relatively few cases) his wife is also working, they share the burden ; thirdly, where parents, ill or past work, without sufficient means are partly dependent on their grown-up children with whom they live, but may be dependent on absent children. The great majority of cases of dependence on relations, to judge from the Reading, Northampton, and Warrington inquiries, work out fairly easily in this grouping ; but

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there are a relatively small number of households where two or more workers pool their earnings to support a miscellaneous family group.

✓There are no general statistics to show the number of dependants of special age or sex, classes or trades, but information is now accumulating which will at any rate throw considerable light on the numerical and other aspects of the question. It is quite clear from the inquiries named that the so-called normal family of a man, wife, three dependent children, and no other, earners or dependants, is comparatively rare, though many households pass through that stage.[1] In 2,144 working-class households were found 481 dependent adults (not wives or widows) and 3,371 dependent children, as shown in the table appended on page 83. Except for purposes of insurance or communal action, the averages resulting from

[1] In cases where the completed family contains exactly three children, there would be three dependent for about nine years ; for larger families there would be three exactly between the birth of the third and fourth child, and between the times of leaving school of the last child but three and the last but two. In smaller families it cannot occur.

these figures are of no direct use, but the
detail (given in the reports) is very inter-
esting.   They show among other things the
infinite variety of the obligations which
earners have to meet and the very irregular
incidence of dependent relationship, and
they afford data (though insufficient) for
giving numerical accounts of workmen's
and workwomen's lives.

It cannot, of course, be assumed that the
number of dependants is unconnected with
the industry in which the worker is employed,
or with his income.   The birth-rate and
infantile mortality rate vary greatly from
place to place and occupation to occupation.
✓The age at which a child becomes self-
supporting is lower the poorer the parents.✓

	North-ampton	Warring-ton	Read-ing	West Stanley	Together
WORKING - CLASS HOUSEHOLDS:					
Number investigated	693	639	609	203	2,144
Number in which at least one man was at work . . .	624	592	529	183	1,928
Number of Non-earners :					
Wives and widows .	625	589	449	182	1,845
Others:					
Adult (males over 18, girls over 16)	93	132	174	82	481
Not adult . . .	870	1,142	977	382	3,371

Again, the lower the wage the more likely parents are to become dependent on their children. Part of the result, which an intensive study would be likely to show, may be thus stated: " The poorer the parents the more children there are to support at one period, and the more likelihood that they will also have their own parents to support at another." The numerical basis of such statements is at present very imperfect, but it is of supreme importance when any public measures of alleviation or assistance are proposed.

It is evident that any study of the number working in any industry with their dependants would be extremely complicated.

Classification by Social position.

We now come to the very troublesome problem of defining or describing social classes. We may consider either families or households or individuals; we may place them by birth, by rank, by occupation, by income, or by habits.

Birth will not give a classification, because it can only throw the problem back a

generation. Rank will take us a very little way, though perhaps for some purposes, even in modern times, it may be worth while to enumerate the hereditary titles whose possession is a patent of nobility, and rank in the Army and Navy, and the learned professions ; but official rank makes so little social difference except on ceremonial occasions, and affects so small a proportion of the population that it is not sociologically important. We may suggest as a definition of a social class that it consists of a group of persons and their dependants (in the sense discussed above) who have intercourse on equal terms so far as sex and age allows. The determinants will then be occupation, income, and habits. It is at once clear that there can be no hard and fast line separating one class from another, and perhaps the most hopeful way of identifying classes will be to try to find a few distinct types and suppose people grouped in classes about those types which they most resemble. This is a task for a critic of life and manners rather than for a statistician, and I do not propose to attempt it at length.

'As typical of the *upper class* we should take people of large and so-called independent means, in other words, owners of property on a considerable scale, who have acquired the habits appropriate to dignified leisure, to public service, or to the management of land or of persons on a large scale ; with them we must group other persons whom they are pleased to admit into their ranks.

A glance at the census of occupations will show how sadly mixed the *professional class* is.   Essentially it contains those who, having passed through a definite course of intellectual and technical training, have been admitted to the rank of clergyman, barrister, physician, etc., by competent authority.   But teachers satisfy the definition very nearly, and there is an unbroken grading from a university professor to an uncertificated teacher in a village school, or a nursery governess.   Musicians, artists, authors and actors have also an intellectual training and frequently a degree or diploma ; but a street-musician,[1] a pavement-artist,

[1] In the English census a street-singer is a musician,

a lithographer, a shorthand writer, and a pantomime child are at the other end of continuous scales of which the top is occupied by developed genius. An arbitrary separation must be made by the tests of intercourse and income, and at least three sections will be found.

Somewhere we must find room for people who will not have intercourse with a class they consider below them, and whom the class to which they aspire to will not admit— a very numerous body in all grades of society.

In industry and commerce we may distinguish an employing class, with numerous subdivisions based mainly on income, and an employed class, containing clerks and manual workers, as already discussed. Clerks (of similar ages) can only be graded arbitrarily by the test of income and intercourse.

It is evident that such classification is not definite, for the same family may contain members of each class so far named except manual workers, and intercourse may be complete. On the other hand,

an organgrinder is a worker in Sundry Industries, and a pavement-artist is without specified occupation.

family intercourse may become nominal or
non-existent, while men as they grow older
tend more and more to associate with others
of similar habits, income and occupation.
But the intercourse test will give lines
cutting across the occupation test, since
persons engaged in professions meet on
equal terms those of similar incomes en-
gaged in commerce. If we merge all in one
great middle-class, we can imagine a grading
by income which would nearly correspond
to the test of intercourse.

To get any clear division between the
middle and the manual-working class, we
must deal with only adults in their final
position. For the middle class is con-
tinually recruited from the working class:
the children of artisans become clerks and
teachers with increasing frequency; very often
the girls become shop-assistants, milliners,
dressmakers, and so on; more rarely they
enter professions, or become employers.

A classification by social position can
only be complete if we allow a place for
the young, no longer dependent, who are
passing out of their parents' class. Many

cases were found in the town inquiries, which may be summarized as follows:

STATUS OF CHILDREN COMPARED WITH THAT OF THEIR FATHER.

Status of occupier	Status of children living with parents.	North-ampton.	No. of Households Warring-ton	Read-ing.	To-gether.
Unskilled :					
No children placed .		60	154	146	360
Children in same grade as father . . .		13	66	75	154
One or more children skilled or appren-ticed.		29	21	18	68
One or more children employed as clerks		—	6	8	14
Skilled :					
None		288	205	180	673
Fallen		13	21	23	57
Same		173	77	64	314
Risen		22	11	12	45
Clerk :					
None		11	14	18	43
Fallen		2	4	2	8
Same		—	4	—	4
Risen		—	1	—	1
Not known or not male occupier . . .		120	84	131	335
Total		731	668	677	2,076
Superior houses not visited . . .		153	13	150 [1]	316
Whole sample of 1 in 20 (*circa*) . .		884	681	827	2,392

Summary :
Working-class households (male occupier):

No children placed 1,076
Unchanged . . . . 472 ⎫
Down . . . . 65 ⎬ 665
Up . . . . 128 ⎭

1,741

[1] Approximate.

We can only make the observation in the relatively small number of households where there are children at work and still living with their parents.

Further details are given in the Appendix.

Mr. Booth gave a very interesting empirical classification in his *Life and Labour in London* (Final Volume, 1902, pp. 6 *seq.*), based for the richer classes on the number of persons per servant, and for the poorer on the number of persons per room. This is, of course, arbitrary, for well-to-do families of similar occupations and incomes vary greatly in their expenditure on rent and arrangements for service, while working-class families tend to take the best houses they can afford and then accommodate themselves to the house.

The manual working class is fairly well delimitated from others in this country. The fringe of men working on their own account is small, and most of them could be readily placed in one class or the other. Shop-assistants, however, are numerous and difficult to classify. Small holders, cultivating with their families, make a difficulty

in classification when they are numerous.

The manual working class is, however, very minutely graded, as has often been remarked. The fear of stepping down a rung in the ladder of respectability is very strong, and quite free intercourse is very restricted in its scope. The division is not necessarily by income nor by occupation, but appears to be determined by habits and manners, which are, of course, partly dependent on income and work. The grading is very often easily observed from the kind of house inhabited, not only from its rent and accommodation, but perhaps principally from the respectability of the street in which it is situated. The actual locality of residence is, of course, one of the tests for all classes. No doubt the grading is different in kind in different towns. It would probably be feasible in any one town to mark off divisions of the working class by types : taking the foreman, or the highly skilled artisan, perhaps owning or acquiring house property, as one ; the ordinarily skilled journeyman as a second ; the machine-tending, partly skilled factory oper-

ative as a third; the untrained man in steady employ as a fourth; and the man irregularly employed in muscular labour, living from hand to mouth, as a fifth. The streets in which these typical persons live and the people they associate with might be found to give fairly distinct classes in many towns. The classification in the country would, of course, be different.

It is doubtful whether it is possible to divide a society into such well-defined social classes that a useful measurement could be made of the numbers in any class. Social structure is in a state of flux, former divisions are breaking down, and new lines of cleavage continually appear only to be modified within a generation. Mr. Stephen Reynolds and other writers specially well acquainted with manual workers have emphasized the gulf between "Them" and "Us," "Us" being manual workers in contact with natural forces or working for a wage with no security of tenure, and "Them" being persons with an adequate income and security against future privation. This, no doubt, represents a common attitude

when the definitely rich and the less well
paid manual workers are in contact ; but
in fact there are " Others " as well as Them
and Us, and classes are not separated by
steep vertical barriers, but rather there is a
gentle inclined plane from the lowest to the
highest.   One can perhaps expand the
metaphor by suggesting that progress from
class to class is like the ascent of a much-
fissured glacier, slippery and uncertain, with
crevasses impossible to pass by some routes
and easy by others, while from time to time
the crevasses widen or close.   In such a case
we should make a map or plan by altitudes,
and that corresponds to the method to
which I now proceed.

CLASSIFICATION BY ORDER

CHAPTER V

CLASSIFICATION BY ORDER

✓ORGANIC and functional classification break down when there are neither distinct types nor clear lines of division, but tabulation and measurement are possible if we can place the members of the nation, society, or group in order. The only order available for anything that corresponds to social grading is that by amount of income or of expenditure (e.g. expenditure on house rent)./ Postponing the definition of family and of individual income, we may suppose that we know the number of households whose income is over £10,000, between £10,000 and £5,000, £5,000 and £4,000, . . . £1,000 and £900, . . . or in any other irregular or uniform grading. We can then proceed by choosing income divisions

that correspond to any conventional grouping ; thus we might name those with more than £5,000 as wealthy or as upper class, those between £1,000 and £5,000 as well off, between £1,000 and £300 as of moderate means, between £300 and £120 as uncomfortably off (these divisions making the upper-middle, the middle, and the lower middle classes). Below £120 we might make three divisions, corresponding to skilled artisans (family income above £80), to men in moderate regular work (between £80 and £50), and to the poor (below £50). At the same time, if the data were sufficient, we could suppose the whole number of families placed in order of income, and divide them from top to bottom into (say) one-hundred grades numerically equal, and ascertain the incomes at the divisions between the grades ; thus it might prove that one-hundredth of the households of the nation had over £2,000, another hundredth between £1,000 and £2,000, . . . ten hundredths in all above £200 ; in the denser parts of the scale it would be better to proceed by tenths instead of hundreds. We

should (thus) tabulate the incomes which mark off successive grades and obtain a scale on which we could place any family or class. Thus the lower middle class would occupy the eighth to the twelfth grades from the top, perhaps, and a family with £50 the tenth grade from the bottom. This is an elaboration of Sir F. Galton's method of percentiles. By this method, wherever we find types or perceptible lines of division corresponding to occupations or habits, we could mark their position in relation to the whole. It would be advisable and easy to provide for the overlapping of incomes between the lower middle class and the artisan class, and also to distinguish between the town and country workmen, by separating them within those grades which both classes occupy. The whole method may be applied more easily to a fairly homogeneous class than to a heterogeneous nation.

When we have assigned the income dividing two grades, we could then make a detailed examination of the methods of expenditure and general habits of some

families who had this income, and so obtain a set of specimens which could be compared with specimens of another nation or another date selected in a similar way. This method affords, in my opinion, the easiest, most definite and most accurate way of giving a general description of a large and multifarious group.

We must not, however, neglect an alternative method, that of searching for types and describing them. When we review the distribution of families or of individuals by income, we may perhaps find that the numbers are aggregated in the neighbourhood of certain incomes (which may be called typical), while in other regions there are few. The curve representing the whole may not proceed uniformly downwards, but may rise and fall. If the observations are massed closely round a type and become scarcer and scarcer, with a certain regularity as they diverge from it, we have indications of a definable class; if after a certain distance the observations become more frequent, we have passed from one class to

[1] For example, see the statistics on pp. 112–3 below.

another. The difficulty in dealing with a whole modern nation is that the classes merge into each other till lines of demarcation are blurred.

I now proceed to the analysis of income necessary for the tabulation by grades.

Classification of Individual Incomes.

For many purposes of classification and of estimates, statements of the money income of the head of a family would be sufficient, if information existed or were obtainable; for others we need to know all individual incomes; and for others, family incomes. We must examine the nature of each of these.

Economists generally speak of the national dividend or of the national product, as if all goods and services were first pooled together and then divided into the incomes of individuals; but from the statistical and sociological point of view we are concerned with the individual incomes first; we may afterwards suppose them heaped together when we wish to envisage the aggregate income of a class or nation.

For the present, we may take an individual's income roughly as that defined for the purpose of income-tax or as commonly measured in wage-statistics; but in both cases there is some lack of precision. From money income must be subtracted all payments for goods and services necessary for earning the income, so far as they are not otherwise desired; to it we must add the money value of all goods, services and privileges to which a person is entitled by the same right as to his money income. In these connexions we easily pass from the measurable to the non-measurable. A doctor and a costermonger need vehicles for business purposes and also use them for pleasure; a clerk must dress with certain respectability, but very likely prefers to do so; in such cases we should only subtract part of the outlay. On the other side, compulsory board and residence are in general valued at a less sum by the recipient than they cost the employer (since, apart from the restrictions they involve, the personal taste of the employee is not met), and are therefore difficult to assess

as income ; privileges, titles and position
often go with employment, and though
they cost nothing to the employer, enable
him to pay less than he otherwise would
have to ; agricultural cottages, when avail-
able only for particular work, should neither
be valued at the rent paid for them nor
in accordance with the present cost of
erecting a similar or better cottage, but as
they would be by the occupier if a variety
of other houses was available to him.
The difficulty in most of these cases is
the absence of any competitive criterion
of value.

Perhaps the majority of workers have a
restricted choice of residence, and this is
a real factor in determining the value of
their income ; but otherwise most incomes
are net (after obvious deductions for
out-goings) and free of restriction in the
spending, save for compulsory pension and
insurance funds, and most are purely
money incomes.

In dealing with a class the members of
which are similarly placed as regards the
nature of their remuneration, the difficulty

can sometimes be evaded ; for while deal-
ing with the money wage only, we can make
comparisons among the members and other
analyses. Also, in computing the aggre-
gate income of a class, we should definitely
take the cash value that the employee
would accept instead of payments in kind
and privileges, without reference to the
cost to the employer. The principal classes
affected are the Army, Navy and Merchant
Service, agricultural labourers, shop-assist-
ants living in, domestic servants, and a
certain number of teachers.

For statistical addition we can use the
device of the margin. If an agricultural
labourer receives 15s. a week and a cottage
for 1s. 6d., we can probably say that the
competitive value of the cottage and the
value to the labourer are both between (say)
2s. and 3s. 6d., and that his wage so far
is between 17s. and 18s. 6d., or 17s. 9d.
+ 9d. If this uncertainty affected about
half the agricultural labourers, it would
result in a margin of $\pm$ one part in a
thousand in the national wage bill for all
industries. On the other hand, if we are

comparing wages in two counties in one of which cottages were let at 1s. and in another similar cottages at 2s., we should have no hesitation in adding 1s. to the former to make comparisons.

In considering the earners of all classes together, we ought to pay attention to any serious discontinuity or essential difference in spending habits, as we go down the scale of incomes and include different grades of occupation. It is common to find a skilled artisan in receipt of as high a money income as a clerk or teacher of the same age, and it is more common to find the family income in an artisan's household as great as that in a clerk's household. But the two families buy different goods and services, pay different prices for nearly identical goods, and their habits generally are quite dissimilar. In computing total national income there is, however, no alternative to adding the salaries to the wages; unless we are prepared for a hedonistic calculus applied throughout the scale of income, and compute how much more satisfaction a millionaire gets from his

income than an unskilled labourer from his.

Professor Pareto has given a mathematical formula which tends to express the distribution of individual incomes in a nation, and it certainly has the merit of extreme simplicity and wide adaptability. Its simplest expression [1] is that the average of all incomes above any amount £x varies directly as x. Thus in the super-tax statistics for 1911-2 the average income above £5,000 is about £12,500, that of incomes above £10,000 is £22,700, above £100,000 is £184,000 ; if the law held absolutely, each of these multiples would be the same, instead of 2·5, 2·3 and 1·8. So far as can be judged from the Income-Tax statistics published by the Commissioners, such a law

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[1] Pareto's formula is $N = \dfrac{A}{x^a}$, where N is the number of persons whose individual incomes are greater than x units. This gives that the number, y, whose income is £$(x + \frac{1}{2})$, $= £\dfrac{aA}{x^{a+1}}$; the aggregate of incomes above £x is $\dfrac{Aa}{(a-1)\,x^{a-1}}$; and the average of incomes above £x is £$\dfrac{ax}{a-1}$. A and a are constants.

Hence $\log y + (a+1)\,\log x = \text{Const.}$, and if $y' = \log y$ and $x' = \log x$ are plotted, we obtain a straight line.

expresses well the individual incomes from
£160 to £700 or somewhat higher, and has
a tendency to express incomes in all ranges ;
but the same proportion (of average to
standard) does not apply throughout, and
various suggestions have been made[1] to
deal with the discrepancy.   It remains that
in the range of incomes above wages it is
established upon fair evidence that numbers
tend to decrease as incomes increase with a
rapidity closely related to the logarithms
of incomes and numbers. Pareto's Law
is inapplicable, at any rate in its simplest
form, to the lower end of the scale, for it
does not show that falling off of numbers
of persons as the income approaches zero
which, in fact, occurs. If we regard the
incomes of the individuals or the incomes
of the families of a nation as a statistical
group, and represent them by a frequency
curve where to each equal grade (say £10
by £10) of income, measured horizontally,

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[1] See " The British Super-tax and the distribution of
incomes," *Quarterly Journal of Economics*, February,
1914, by the present writer, and "A new illustration
of Pareto's Law," *Statistical Journal*, 1914, by J. C.
Stamp.

an ordinate is erected to represent the number at that grade, then the curve is extremely skew ; its highest point for families in the United Kingdom is probably in the neighbourhood of £100. If we represent £100 by an inch, we need a scale 1000 inches long to take in the incomes of £100,000, and even then we have not the maximum. Again, if we are to show the detail at the lower end, we must mark the number at every £10, and our vertical scale must show hundreds of thousands, whereas there are only 438 incomes altogether for the 500 £10 steps from £20,000 to £25,000. Now, if we proceed by equal ratios instead of equal amounts and numbers, both horizontally and vertically, that is, if we use a double logarithmic scale, the diagram will be telescoped and all the details brought into a small space. Pareto's Law states that the graph so obtained is a straight line, and this is obtained approximately for incomes over, say, £160. The details for the range £100 to £160 are not known.

On the other hand, if we separate out

classes by occupations or by industries, we find that both the wages and salaries curves are very much less skew, and, in fact, have a general resemblance to the normal curve of error, and are even more allied to the skew curves which Professor Karl Pearson has made familiar. There is a definite type, and the numbers become rapidly less as the amounts deviate from the typical above or below. The results of the Wage Census of 1906 show this very clearly in great detail, and the same general appearance is obtained whether we take occupations singly, or industries, or group all the results together. Where there are recognized time rates it might be expected that the majority in an occupation in a locality would all receive the same amount ; but it is difficult to find such cases, and as soon as the same occupations in different localities, or different occupations in the same locality, are merged, curves appear. It is the great defect of agricultural wage statistics that they are nearly always in the form of predominant rates or averages for districts, and there is no means

of estimating the variation of individual earnings.

In the case of women's wages, the data suggest less variation at first sight, but examination of the detail shows no essential difference in this respect.

The variation of income within occupational classes is due to two causes whose effects cannot be disentangled with our present information. A boy or girl, or young man or woman, increases his or her rate of wages during the first few years in an occupation ; in general, the lower the final rate of payment the more quickly it is obtained, and in unskilled trades there is often no avenue for further progress. Increases are received in some cases after mere lapse of time, with hardly any increased call on the worker; in other cases they come with the ability to take more responsibility or to do more difficult work ; in others by promotion to a higher grade in the occupation or to another occupation. With piece rates the earnings rise so long as the workman improves his skill or pace. Except in those cases (Civil Service and allied occupa-

tions) where there is a regular routine of increase, very little indeed is known of the numerical effects of this process, though, of course, arrangements and customs generally recognized in an industry can be ascertained. In the Wage Census an arbitrary division by age is made, and males over twenty years are classed as men, females over eighteen as women ; but this gives no help for the problem.

The other cause of variation is difference of ability and industry between persons of the same age and standing in an occupation. Of course, it may be true (as is often supposed) that standardization of rates of wages may prevent this difference having effect, and it is a question on which evidence is much needed ; but employers do not willingly pay men more than they are worth, nor do men stay if they are receiving less than they are worth, if they are able to move. The better men, in fact, frequently move to the better wages. Where piece rates are paid variation has, of course, much greater, if not full play. In the cotton trade, where very elaborate

lists are compiled with the definite inten-
tion of making earnings depend only on
the worker and not on material or machin-
ery, it is possible to observe the variation
in detail ; and it is very interesting to see
how closely the earnings of women weavers
and men mule-spinners conform in their
grouping to the normal curve of error.
The figures for 1906 are as follows :

LANCASHIRE AND CHESHIRE COTTON INDUSTRY.

Men Spinners (self-acting mules ; all counts).

Full week's earnings.	Numbers recorded.	Numbers from closest normal curve.
Under 25s.	67 . .	36
25s. to 30s. . . .	185 .	146
30s. to 35s.	357	474
35s. to 40s.	871	969
40s. to 45s.	1,525 . .	1,324
45s. to 50s. . . .	1,185	1,194
50s. to 55s . . .	683	709
55s. to 60s.	224	277
60s. and over . . .	115 . .	83

Percentage misfit, 11·7.

Women Weavers (4 looms).

Full week's earnings.	Numbers recorded.	Numbers from closest normal curve.
Under 15s.	412 . .	174
15s. to 20s. . . .	2,866 .	3,646
20s. to 25s. . .	13,520 . .	12,278
25s. to 30s. . . .	7,189 . . .	7,763
30s. to 35s. . .	739 . .	923
35s. and over . . .	77 . .	19

Percentage misfit, 12·4.

The statistics of the first wage census of 1886, though they are formed partly by tabulating averages and not individuals' earnings, give for men a fairly definite indication of two normal groups,[1] one with its centre at 22s. 3d., corresponding to unskilled work, and the other with its centre at 29s. 6d., corresponding to skilled. But the tendency has so long been to destroy any sharp distinction between skill and its absence by the growth of machine-minding and other partly skilled occupations that we cannot expect to continue to make this distinction.

Since a man's responsibilities generally increase from the time of his marriage till the time when his children begin to earn, the increase of wages or salaries with age is of the greatest importance. No serious investigations have, so far as I know, been made to find in what occupations there is a prospect of progress for the industrious. The bearing of this on the standard of living will become more obvious in the next section.

[1] *Statistical Journal*, 1902, p. 351.

That income from ownership increases with age has been carefully demonstrated by Mr. Mallet.[1] Since the same persons very frequently own property and are also earners, and the ownership has very little to do (after a man is once placed) with the amount of earnings, it would very likely be interesting and advantageous to measure these groups as quite distinct. The material for such a study is now accumulating, and there are signs that Paretor's Law applies better to " unearned " and earned incomes separately than when they are merged together.[2] But apart from the difficulty of getting a workable and satisfactory definition of unearned income, it is still necessary to deal with the whole incomes of individuals (whatever its source) in order to get an ordered classification of the whole nation.

When all the curves of frequency of incomes of all the classes which can be separately studied are put together, the

[1] " A method of estimating capital wealth from the Estate Duty statistics," *Statistical Journal*, 1908, p. 67. By B. Mallet.

[2] Ref. to *Quarterly Journal*, p. 107 *supra*.

resulting curve is dominated by the sizes and averages, rather than by the shapes, of the separate curves ; the result of the medley is the logarithmic grouping already described.   The highest part consists almost purely of unearned incomes, while in the lower part earned are of most importance.

So far I have spoken mainly of individual incomes ; but it would evidently be futile to place all persons in the order of their income, without correction for age and standing, if we proposed to substitute this order for an organic classification.. It does not seem practicable simply to strike out immature incomes : in the case of professional men, the maximum incomes are not reached till years after they are settled in their social and economic position ; in the case of very many women's occupations the income is temporary and the status unsettled till marriage alters the circumstances, while if the woman does not marry, her existing income may prove to be mature. We must then consider whether family income will serve as a means of classification by order.

Classification of Incomes : Family Incomes.

Let us suppose that we have sufficiently complete information as to earners and dependants in all households. The alternatives as to individuals are that they live as members of families, or as servants, or by themselves, or as lodgers, or in some group other than a family group. Let us accept the definitions as to membership of a family and of lodgers suggested above (p. 77). The family then consists of any group of persons nearly related by blood or marriage or by adoption, who in general sleep in the same tenement and have a common table. This is the normal mode of life and embraces the great majority of the people of the United Kingdom. It would be best to keep open a double tabulation by income— one column for families, the other for individuals. In the latter column we should place all persons living by themselves, single lodgers, members of a voluntary group (e.g., of a college) classed as individuals, similarly persons living together for any common work (e.g., shop

assistants), domestic servants, and also persons in institutions (workhouses, prisons, etc.). In the main the second column would consist of independent individuals with none dependent on them. The first column would consist of mixed groups of dependants and independants, with or without responsibilities. I doubt whether any satisfactory general rule can be made for mingling the second column completely with the first, in order to get any grading into social classes or industrial classes including dependants, but a series of more or less arbitrary rules could be made for dealing with great sections of this second column. Thus all working girls not living with their families could be classed with those families whose daughters of the same age earn about equal wages (making some allowance for board and lodging), and similarly with working lads ; clerks and young professionals would be classed with commercial and professional families, manual workers with manual workers. Adults could be placed with those families where the principal adult earner or owner had a

similar income obtained in a similar way.
Then the numbers in any particular grade
formed in the family income scale, say
incomes from £100 to £120, would consist of
a number of persons (dependants and
earners) united in families whose joint
income was within this limit, and a number
of individuals not living as members of
families whose individual incomes equalled
those of corresponding individuals of the
family. It would be necessary to keep open
in this particular range the division be-
tween manual workers and others. I have
followed out the analysis so far, not because
I suggest that this method is practicable
in its entirety with existing information,
but to show the extreme complexity of
any division into classes allied to social
classes. I have now to point out that the
result of grading by family income would
depend quite as much on the age and sex
constitution of the family as on the position
of the earners or owners in it. To rectify this
it would be necessary to devise a scale for
each grade, based on the idea of a normal
family, somewhat as follows: If the

normal family is taken as having one man
and one other wage-earner, a family with
an additional wage-earner would be sup-
posed to be deprived of his or her contri-
bution to the family income, and a family
which lacked a wage-earner would be
credited with an imaginary addition, for
placing in the scale, allowance being made
for sex and age. Thus in the range £100
to £120 we should have the members of
all families whose principal male wage-
earner received, say, £80 to £90, and whose
subsidiary earners, if any, were in that
kind of occupation where a lad earned
£30, or a girl £20. A scheme could, I think,
be devised into which the great majority
of the population would fit, with a margin ;
but it would be highly artificial, and so far
the data only exist for the working-class
parts of those towns which have been the
subjects of special investigation.

Another possible method is classifica-
tion by annual values of houses, though
this would also require many artificial
rules if the whole population was included.
All investigations which throw light on

the relation of rent to income, and of rent to ,family income and size of family combined, would be helpful in establishing the lines of this classification. The statistics of the Reading inquiry have been examined (by the mathematical method of partial correlation) from this point of view, with the following result (not included in the published accounts):

AVERAGE RENTS IN SHILLINGS (AND DECIMALS OF A SHILLING).
Number of equivalent adults.[1]

House-hold weekly incomes	1	1½	2	2½	3	3½	4	4½	5	5½	6 or more
Shillings.											
Under 17	4·3	4·9	4·0	4·9	5·7	—	4·0	4·5	—	—	—
17–19	—	—	5·5	5·4	5·1	4·5	—	—	5·2	—	4·0
20–22	5·7	5·6	5·3	5·8	6 0	5·8	5·1	4·5	—	5·2	5·0
23–25	—	5·6	6·2	5·7	5·7	5·7	5·7	5·8	5·9	—	6·0
26–28	—	—	5·4	5·9	6·5	5·6	6·6	5·7	6·5	—	—
29–31	6	6·3	6·3	6·1	6·4	6·5	6·1	5·7	7·0	—	—
32–34	—	—	6·1	5·7	6·4	5 9	5·4	5·7	6·4	—	7·0
35–37	—	—	7·0	6·0	6·3	6·0	6·6	8·7	6·5	5·6	5·2
38–40	—	—	9·0	6·6	7·9	6·7	6·3	6·5	5·5	6·7	6·5
41–43	—	—	—	6·0	6·1	7·0	5·7	6·9	5·9	6·1	5·6
44–46	—	—	—	10·0	7·7	6·0	5·6	7·1	9·0	7·2	6·0
47–52	—	—	10·0	—	7·0	—	6·6	6·5	6·2	6·0	6·5
53–61	—	—	—	—	6·5	—	6·5	7·9	6·3	6·0	6·8
62 and over	—	—	—	—	7·0	—	8·2	7·2	9·7	6·4	7·0

When the method of partial correlation

[1] Children under 5 years were counted as ¼, children from 5 to 14 as ½, and boys of 14 to 18 and girls 14 to 16 as ¾; older persons as 1.

is applied to the (more detailed) data, the following equation for the line of regression is obtained: [1]

$$z = -1 \cdot 78x + \cdot 65y.$$

where z^d is the excess of rent over its average (6s. 1d.), x is the excess of the number of equivalent adults over its average (3·29 persons), and y shillings is the excess of income over its average (31s. 9d.). Thus for equal family incomes the rent *decreases* with the number of persons ($1\frac{2}{3}d.$ per person), and for families of equal sizes the rent increases with the income ($\frac{2}{3}d.$ per shilling).

As the family increases in size wants press more on income and less tends to be spent on rent, but this tendency is slight and the data irregular. On the other hand, the tendency to increased rent with increased income is clearly shown in the table, and confirmed by the calculation. These results are more evident when the equation is written:

$$\frac{z}{\sigma_z} = - \cdot 136 \frac{x}{\sigma_x} + \cdot 532 \frac{y}{\sigma_y}$$

[1] The constants involved are $\sigma_x = 1 \cdot 2$, $\sigma_y = 13 \cdot 0$, $\sigma_z = 16 \cdot 0$, $r_{yz} = \cdot 458$, $r_{zx} = \cdot 152$, $r_{xy} = \cdot 543$

NATURE OF FAMILY INCOME

CHAPTER VI

I PASS on from the use of income statistics for purposes of classification to the consideration of the nature of family or household income and its measurement. By whatever method we delimitate the family, we shall find a great variety in the number and nature of individual incomes that are received by its members. The simplest method is, of course, to define income and define membership of a family, and then to add the incomes of individuals to obtain family income. This is reasonable, so long as we do not make the tacit assumption that all these incomes are pooled, and then the money or goods and services purchased with the total are distributed by some mutual or matriarchal arrange-

ment. For, in fact, nearly every recipient of an income, except young children, asserts some claim to private ownership of it. A common method is for the earners to pay definite sums to the housewife, from which she pays the rent and for the food, for other common expenses, and for the clothes of those children who earn nothing or do not earn enough. In other households the principal earner or owner may pay the rent, rates, and other definite outgoings, while he makes a fixed weekly or monthly allowance for housekeeping. The cases where there is more than one income and the whole is pooled are probably in the minority ; but there are very many households, in fact, the majority of those where there are no earners other than the father, mother, and non-adult children, where the great part of income is pooled, while the earners keep a definite weekly amount for their personal expenditure, including clothes. As the girls and boys grow older and earn more than the minimum necessary for maintenance, they become more and more of the nature of

lodgers; they may insist on special food, and may base their personal expenditure on a standard definitely higher than that of their family. In the inquiries already referred to, it was very generally found that the housewife was very communicative as to the sums of money that passed through her hands, but often she did not even know the amounts earned by her husband or adult children. In the poorer households, when there is a definite and united attempt made to maintain a standard of sufficiency, very nearly the whole of all incomes is pooled; in well-to-do composite households, where there is no difficulty in obtaining the standard of comfort desired, the privately spent income may be large. When we are considering the sufficiency of income in relation to any assigned standard, we must therefore make two categories, one when we take the total income of all members and suppose it spendable directly with the view of ensuring that every member reaches the standard, and the other when we take the actual sum in the hands of the house-

wife and consider it in relation to that part of expenditure for which she is responsible. Formally, perhaps, we should make a third category of the relation of the income of each person to the needs of those for whom he or she is legally responsible.

There are many practical difficulties in estimating incomes where there are lodgers. As already pointed out, there is every grade from the case where the lodger is a paying guest (in middle-class phrase) to the case where a person makes her living by taking a house and letting furnished apartments with service, and the case where rooms not needed by the family are let unfurnished. Lodgers' payments may be divided into contributions to the rent, payment for food, payment for services, and profit to the landlady ; these cannot be disentangled precisely, but in practice reasonable estimates can be made in ordinary cases. In the town inquiries we reckoned that lodgers paid part of the rent and that the housewife also made a few shillings a week profit in return for her services. No doubt a logical definition

could be formed, but so much depends on whether the lodger occupies space that would otherwise be vacant, or whether a larger house is taken for the purpose of receiving lodgers, that a definition would be difficult to apply. Somewhat kindred ambiguities are found with families where home-work is done ; some part of the rent should be debited to the receipts from it.

A further problem arises when we consider how far work done in and about the house by the inhabitants should be valued and reckoned as income. Where vegetables, fruit, or flowers are grown in a garden or allotment, their value is income, but before reckoning it, the rent of the ground (if that can be determined apart from the building) and expenses of seeds and tools should be subtracted ; in amateur gardening it might easily happen that the remainder was negative, though possibly balanced by the pleasure obtained in anticipation and the health invigorated by cultivation. Practically the only important cases are allotments and cottage gardens of the nature of allotments, and in these cases

estimates are not difficult to make correctly, within, say, 6*d*. per week.

Putting aside the unimportant questions of how to deal with small repairs, etc., which one man will do for himself and for which another will pay an outside workman, we come to the treatment of women's household work. The only basis for valuing this would be to reckon the cost of having it done by paid help if the wife did none of it ; but apart from the fact that much of it would be different in kind—for example, the difference between a mother's and a nurse's handling of children—the valuation would not be reasonable, for the paid work would not be directed in the same way to satisfy the most urgent needs, nor fitted into odd times. I do not think that any general attempt to value these services would result in valid measurement. We may evade the difficulty, however, by using two methods of reckoning simultaneously and applying that which is most suitable to any problem or classification in hand.   One is to regard family income as of two parts—one meas-

urable and the other composed of in-
commensurable services ; so long as we
are dealing only with a class in which the
practice of having servants or of not having
servants is universal, no difficulty arises
in comparison. The other method is to
subtract the expenses of domestic help;
this applies where the women go out to
work, or work for gain at home, and in
consequence pay for such help,[1] which
they would otherwise not need. Then the
expenses of the help may be subtracted.

The servant-keeping class, as a whole,
is poorer in comparison with others, in so
far as the wife or daughters do not render
services. The total income of a class and
the total national income do not include
unpaid services on this method of reckon-
ing.

[1] If a servant is kept only because there are lodgers,
her expenses should be deducted from family income.

PRODUCTION AND CONSUMPTION

CHAPTER VII

In very simple conditions of society it might be possible to reckon individual and family production in terms of commodities ; but with actual division of labour this is not practicable, and the only measure of the value of production is the sum of money paid for it, and this measure involves the theory of pure economics, that every factor in production is paid in accordance with its share in the production.

We can get a step further when we consider production by industrial groups as a whole, but only when we merge land, capital and labour together. Thus estimates can be made of the total crops, dairy produce, meat, etc., produced by

the agricultural community ; of the amount of coal raised ; of pig-iron manufactured, and so on. Each stage in complication of manufacture makes the reckoning more difficult, since the products are hetero- geneous and not additive. It is only in very simple cases that we can compare productive efficiency per person. For any large survey we are driven to the net value produced by a firm's or group of firms' activities. It would be interesting and important to find on the one side how much is allotted respectively to rent, interest, profits, salaries, and wages from the receipts of various industries, and on the other side how individuals' incomes are built up of these constituents ; but this would be an economic rather than a sociological analysis, and is only remotely connected with production by classes.

The more promising line of approach may be from the side of consumption. Whether we are considering individuals, groups or nations, there is the equation that the money value of goods and services produced or received equals value of goods

and services consumed or used plus value saved. Consumption is generally a personal matter, and we should be able to enumerate and describe, as well as measure, consumption by families and individuals. Further, we should be able to find the total of particular commodities (e.g., meat) consumed by classes and add them up for the nation. Where this can be done, we can verify the estimates by comparing with the total produced in or imported into the country. The difference between the consumptive and productive measurements for the whole nation, regarded as a group which produces, exports, imports, consumes, and saves, is one of practicability rather than of theory. The final stage of production (including transport and dealing) is the delivery of the finished goods ready for use to the consumer. It is at this stage that we can decide what goods can usefully be measured (so many pounds of meat or bread, etc.) and what can only be valued (so many pounds or shillings spent in amusement or rent).

In considering expenditure, we ought

to put on one side that which is paid compulsorily in taxes, rates, and insurance, and examine how far it is onerous and how far merely co-operative or substituted payment for goods or services received. With houses where rates are included in the rent it is often troublesome to determine what part of the rent is due to rates. We should also mark that part of expenditure which is, or may be regarded as, necessary for the particular occupations, but not leading to personal satisfaction. The remainder then is spent freely.

We evidently need detailed accounts of expenditure of households or groups who consume in common ; and in fact a very great number of family budgets have been collected, officially and otherwise, at various dates and in several countries. It may be said at once that the material thus obtained is interesting, instructive and adequate for many purposés as regards principal expenditure ; but it is rough, imperfect and partial, as might be expected from consideration of its essential difficulties.

We ought to have, for a family for a

sufficiently long period to be typical (probably a year), on the one side a complete account of all the income (including privileges and payments in kind) of all its members, and an account of the goods possessed at the beginning of the period ; on the other side we should have a statement of all expenditure, stating quantities where the goods purchased were measurable, so complete that when allowance was made for the change in goods possessed at the end of the period the two sides should balance. Relatively few people have the patience, perseverance, willingness and skill to keep such accounts. In fact, budgets very often do not balance; though some items of expenditure are evidently underestimated, still expenditure often exceeds apparent income. In fewer cases a considerable part of income is not accounted for.

We have also to face the very troublesome obstacle to systematic estimates of class expenditure, that the very fact that a person is willing and able to keep such accounts shows that he has unusual char-

acteristics which are probably reflected in his expenditure. He is likely to be more economic and systematic, more in the habit of balancing the future against the present, less given to consumption of alcohol, and perhaps of tobacco, or to expenditure on amusements, than the average of his class. This will influence the amount available for food and for clothes. The more we aim at detail and completeness the more this bias will become effective.

There is very great uncertainty in the nature of goods purchased. A loaf or a pound of bread or of flour seems fairly definite, but actually there is enormous variety in their constituents, digestibility, and nourishing power, from time to time, town to town and shop to shop. Meat is evidently very troublesome to define by quality. Moreover there are very few standardized food or drink commodities; almost the only standard aimed at by the retailer is that of price, and price keeps steady and the trade description unchanged while the constituents alter over a considerable range. Even if physiologi-

cal chemistry were sufficiently advanced to determine nutritive values, we should still be far from measuring the satisfaction coming from consumption. It is more difficult to deal with clothes even than food, and of course out of the question to measure amusements.

The result is that we can only obtain very general ideas as to consumption. Thus we may find that a class of families of nearly the same size and distribution by age, and with nearly the same income, in a given district and at a given time, buy on an average so much meat, bread, and groceries, whose kind we can test at their favourite shops and stores. We can make a similar tabulation for another group, and possibly go so far as to say that there is no obvious difference between the quality of the commodities bought, and in fact that the consumption of one group is definitely of so much more bread, meat, tea and sugar than of the other. If we keep within a fairly narrow range of classes, localities and periods, it will very likely be the case that the measurable

differences are obviously more important than imperceptible variations in quality, and we may be able to make such statements as that one class is more adequately fed than another, or that one is underfed and another wasteful; but we do not arrive at any numerical measurement, unless we can use the device of the margin to limit our uncertainty, and this is not generally possible. None the less, carefully drawn descriptions arranged for comparison may make a very good substitute for measurements, which are, after all, means of forming judgments and not the judgments themselves. It is, therefore, worth while to make both extensive and intensive studies of expenditure, if we bear in mind the limitations of the results.

When the classes are much separated in habits, income, place, nationality, or date, it is very doubtful whether numerical comparisons can be made; it is best to choose, on arithmetical principles, representative families of defined classes, and then to tabulate simply the budgets, describing as exactly as possible the commodities,

without attempting to say that one class consumes 10 per cent more than another. It is only in the cases where the differences in the general nature of expenditure can be shown to be slight that numerical comparisons of cost of living are valid. Extreme care is needed in interpreting such a statement, as that the cost of living is 50 per cent higher in U.S.A. than in England.

We can proceed with more security on another line of analysis. It is customary to classify expenditure under such categories as food, drink, clothes, fuel, light, rent, insurance, and so on. If we pay no attention to the actual quantities bought, but only to their cost and their place in this classification, we can compare the amounts spent for various purposes with total income, and make many interesting comparisons. We should first define carefully the class under investigation by any of the methods already discussed. We can then investigate the relations between the proportions and amounts spent on rent, food, etc., and the size and

constitution of the households within the
class ; and also examine the proportions
and amounts in similar households in
different classes, at different periods, and
even in different nations. A good deal
of fairly systematic work has been done
in this direction, but much of it is dimin-
ished in value because the budgets are
averaged and not given individually. The
result is that a student is dependent on
the grouping made by the investigator,
which may (for example) merge children
of all ages, or otherwise obscure important
lines of division. Also from the purely
statistical point of view the test of pre-
cision, which depends on knowing the
variations about the averages, cannot be
applied. Thus in the " 2nd Fiscal Blue-
book," Cd. 2,337, we learn that in 382
families whose weekly income was between
35s. and 40s., 6s. 5d. was the average
expenditure on meat and bacon ; but we
do not know whether the majority of the
families spent within 6d. of this amount,
or whether the variation was wide, and
hence we cannot judge the sufficiency of

the numbers included to give an average within, say, $3d$.

Naturally most attention has been given to working-class budgets, because there is more likely to be insufficiency (possibly remediable) in these, and the progress of the working classes has interested social reformers more than other developments. But the sufficiency of incomes to meet other standards is of importance, and from the descriptive point of view there is no reason why we should not study all classes. Work has been and is being done in this direction as regards the middle class, and it is perhaps specially important as regards the large number of isolated workers, young men and young women, who are struggling to reach a standard higher than their incomes allow.

CHAPTER VIII

THE STANDARD OF LIVING

Conventional Standards.

CLOSELY connected with income and expenditure is the standard of living, a phrase to which I hope to attach a definite meaning, if not measurement.

Let us suppose that we have got so far in delimitation of classes, by methods already discussed, that we can select types —such as the agricultural labourer in the Midlands with an income from all sources of £45 per annum, or a town artisan at 35s. a week, or a clerk with £200 per annum— which occupy a central position in a defined class, and can also be placed on a definite grade in the national scale of incomes, e.g., the agricultural labourer on, say, the fifth of the hundred steps (p. 98).

We should select normal married men in ordinary health and regular work, at some definite stage in their lifetime, e.g., the period of maximum responsibility, the age when their family is completed and none of the children have left school. In the so-called working classes a suitable age would be about 35, and earnings would then have reached their maximum. With the middle and professional classes five to ten years later would be suitable ; earnings may not be at their maximum, but the standard is in general fairly established by that time. We should take a family typical of its class in as many respects as possible—not with the arithmetical average of measurable characteristics, but with the mode (in the statistician's sense) of characteristics. In the working classes we shall soon have enough information to establish the type in wages, in number of living children, and in some other respects.

For example, our process of selection might lead us to an artisan employed in engineering in a town of 150,000 to 250,000 in-

habitants at 34 to 38 shillings a week,
married, wife living, aged 35 to 40, with
four dependent children, three at school
and one at home, as typical of a large class
of artisans, whose numbers we could esti-
mate, and which we could fit into a general
classification of the nation. We should
then study a number of persons in the
particular circumstances defined, and see
how far they varied in their method of
expenditure. It would, at any rate, in
many classes be found that there was no
great divergence among the majority of
the class. Not only is originality rare
and the influence of custom universal,
but convention is very strong. In some
cases any great divergence from the mode
in residence or of living and clothing
would make a man unacceptable to his
employer, in others to his fellow-work-
men. In many cases there is no alternative
as to housing, and little variety in the
goods sold at accessible shops. So far as
these considerations apply, the mode is
truly representative. In many classes ex-
penditure on house-rent, food and clothes

is practically determined by the custom
of the class ; but expenditure on insur-
ance, amusement, tobacco, drink, sub-
scriptions, books, and other things not of
primary necessity may vary greatly, when
the income leaves a margin for such things.
It is to a great extent in the variation of
free expenditure and in the employment
of leisure time that individuality has
play.

While on the one hand the study of
incomes and an ordering of the households
of a nation in accordance with incomes
(allowing for personnel of family) should
enable us to select types tentatively; on
the other, the study of the amount of
resemblance in expenditure and customs
of the families in the neighbourhood of
the types should help us to find lines of
division by which we can separate classes.
If, in fact, we find that normal families with
an income of £40 to £60 are found in similar
houses and with food expenditure similar
in amount and choice, and that families
with an income of £60 to £90 inhabit a
different type of house, have a more liberal

and varied diet, and dress differently from
the poorer class, but closely resemble
each other, and so on up the scale, we
have made considerable progress in class
definition and description. There is no
doubt that in this way we shall find a
very great number of classes, or sub-
classes, as soon as we consider any char-
acteristic besides income. It would first
be advisable to treat England, Wales,
Scotland, and perhaps three parts of Ire-
land (N.E., S.E., and W.) separately ;
next, to take five divisions in relation
to aggregation and density, such as, (1)
London, Liverpool, Manchester, Birming-
ham, Sheffield, Glasgow, Edinburgh ; (2)
other manufacturing towns and County
Boroughs, with population over 50,000 ;
(3) less dense manufacturing districts ;
(4) mining districts ; (5) country districts,
with a moderate number of areal divisions.
In each of these urban or geographical
divisions we should be prepared to find,
perhaps, five sub-classes of manual workers
in ascending scale of incomes (casual,
regular unskilled, partly skilled, artisans,

foremen and highly skilled), and several sub-classes of the so-called middle class. Having defined these sub-classes by the income of normal families and the amounts spent in rent and food, we ought (if our classification were successful) to find relatively slight variation about distinct averages as regards other measurable attributes [1] (such as expenditure on insurance and on amusement ; age of marriage, and size of family). If so, we should be justified in speaking, for example, of " the ordinary unskilled workman in towns of moderate size " as if we could generalize about his characteristics.

Each of these sub-classes has at any particular time a nearly definite standard of living capable of description, quantitative in respect of part of expenditure, qualitative as regards the rest. The individual members still show a considerable variation in personal habits ; the families vary greatly as to size and age, partly because of the various ages of the chief earners,

[1] I.e. the curves of frequency representing the variation of the quantities would have small standard deviation.

partly from natural variation; and to every class there is a fringe of young workers and bachelors and spinsters, not living as members of a family.

A considerable mass of data is available for studying these standards in the Labour Department's Reports on Wages and Cost of Living (Cd. 3864 and 6955), in reports on Agricultural Labourers (e.g. Cd. 2376), and in private investigations. But together they do not make a complete systematic account of the whole of the working classes of the United Kingdom for any date, and a great deal can still be usefully attempted in filling out the descriptions.

The standards of living so far considered are those actually attained by defined classes. It is an almost universal experience that when any particular income has been received by a class for a sufficient period to have become customary, that the standard fits the income or is raised (more rarely lowered) in response to its change, so that income not pre-allotted to particular expenditure is rare; there are many unsatisfied wants pressing on this

scanty margin, and there is a struggle to make income meet expenditure over all ranges of income up to (say) £1,000 a year; it may be still felt at £100,000. The standard that exhausts the income soon becomes customary and conventional, and the goods bought are regarded as necessaries of life. Again, in many cases in modern times, especially in the middle class, people are anxious to live, or to appear to live, at a standard proper to the possession of a larger income, and are thus always badly or uncomfortably off. It is well known that standards differ greatly in different countries for classes whose occupation and education are similar; and it is evident that standards are arbitrary and conventional. During the latter half of the nineteenth century, wages, both nominal and real, increased so considerably that it may not be an exaggeration to say that at the end of it an unskilled labourer had in many respects reached the standard of an artisan in 1850. Since the rise was slow and cumulative, it would not be noticed by the individual,

who is more concerned with the growth
of his wages as he approaches maturity,
than with the question whether at the age of
thirty he is earning 5s. more than a man
of his age doing similar work twenty years
previously, or whether the prices of bread
and meat had fallen or risen 1d. the loaf
or pound in that period.   It is quite likely
that he is not doing the same kind of
work as his father, that he does not live
in the same kind of house, and that he
cannot easily compare the way in which
he and his young children live with the
partially forgotten regime of his early days.
In particular, he may in a town find it
difficult to assess the return he gets for
his probably greater expenditure in rent.
Again, it very generally happens that a
man's family expenses increase more rapidly
than his rate of wages, so that personally
he faces a falling standard as he reaches
middle life.   None the less wages for
similar work may be gradually mounting
and the conventional standard of his class
be rising.   If prices are falling and money
wages stationary, it is quite likely that

the standard will not press so rapidly on income ; while if money wages are rising, even if prices are rising equally, the extra coins may be used in buying goods which cannot really be afforded. Whatever the cause, it appears that people do not feel any the better off, or have any greater unallotted margin, because an older generation got along with less money and higher prices.

Thus it happens that one hears of claims for minimum wages, which, when analysed, mean the cost of the highest conventional standard so far reached by the class, though it is often implied that the minimum has some relation to a minimum subsistence wage. The continual striving to obtain and establish a progressively higher standard has been the policy of organized labour for generations, and has probably had satisfactory and far-reaching results; in so far as a higher standard means more efficient production, it has paid for itself, and in so far as it has involved better care and nourishment of children and more adequate

house-room, it pays over again in the next generation. On the other hand, a very great deal of the improvement in all classes has been wasted by a continual straining after what I may call conventional useless-nesses, by which one group tries to mark itself off as superior to another group; and there is a foolish and costly race to maintain and destroy this division, where the competitors waste their breath and the gap remains. No one can estimate how much is spent on the trappings of respectability or on the desire for show. This is quite unconnected with the supposed increased expenditure on amusements and travelling, which there seems no need to condemn, and which may be financed by a decreased expenditure on drink. .

In describing the standards of living, we should proceed by the method of family budgets discussed above, pp. 138 *seq*. Since a large proportion of income (perhaps varying from one-twelfth to one third in different classes) is spent on rent (including rates), and the house is of special importance in judging of social standing, it would be well

to deal in detail with the accommodation,
situation, disabilities or amenities of the
house and garden of the typical family in
each class. So strong is the feeling of
conventional necessity, that workmen not
infrequently regard rent as deductive
before they have the spending of their
wages, whatever type of house they live
in, and it is doubtful whether they allow
sufficient weight to the generally improved
accommodation and convenience that is
found in modern artisan houses, when
measuring or denying the progress of the
standard of their class. This may be
due in part to the fact that daily travel-
ling is frequently an alternative to higher
rent, and that travelling to work is often
properly deductive in reckoning net income,
or to the fact that in the case of the more ex-
pensive rents in crowded towns the payment
is not for satisfactions enjoyed, but is high
only because the alternative uses of the
ground are valuable. Without entering
upon the question as to whether rates are
deductive, I point out that the lighting,
cleaning and good order of the streets, and

the facilities for education, have a definite
place in the standard of living.

After housing, clothing is the most
distinctive characteristic of a class, but it
is very difficult to suggest any systematic
way of measuring or describing clothing.
If budgets were complete, we could find
the customary expenditure, and distinguish
the important and frequently recurrent
item, boots, from the rest. But, since
people in buying dress pay attention per-
haps as much to appearance as to dura-
bility (when we include both sexes), it is
evidently impossible to measure the intrinsic
value of clothes ; and since the actual
textures used vary so greatly and change
so often, and the relative expenses of raw
material, manufacture and making have
probably changed greatly in recent times
and are different from one class to another,
it is useless to take only a money measure,
and say (for example) an artisan buys a
suit of clothes for 35s. and a labourer
for 20s., or whatever the figures might be.
The furthest we can go as to this part of
expenditure is ' to state the expenditure
and describe the result class by class.

For expenditure in food, the details given in budgets are more complete. The relations between standards can be studied by the amounts spent on bread (and other cereal products), tea, sugar, meat (distinguishing sundries, hog products and butcher's meat), milk, butter, eggs, and potatoes, to name the principal commodities which appear in all but the poorest budgets, but in very different proportions; and a rising standard is shown by increasing expenditure, especially on meat, and perhaps milk and eggs, which are regarded as semi-luxuries. The amount of bread, potatoes, and perhaps tea and sugar, is nearly satiated in quite small incomes ; as the scale rises, the consumption of other items rapidly approaches a maximum. When sufficient quantity of food is obtained, there is another ascent in quality and in variety, and finally an indefinite possibility of expenditure in pure luxury. Our definite information ceases at the stage of sufficiency, with some reference to quality, among the better-paid working-classes. The de-

scription for the lower middle class is only beginning, and there is no statistical information to the detailed expenditure of the rich.

While it is natural, when searching for a type and making measurements which describe the standard for a class, to emphasize the similarity of the members and the homogeneity of the class, it is necessary after the numerical description is given to remember that there is in reality infinite variety and that the resemblances are rather superficial. One family will live in comfort and decency on a sum which leaves another family underfed and badly clothed, even though the money is allotted in much the same way. This kind of variation is outside the sphere of statistical measurement, even though artificial measurements by order might conceivably be attempted ; for the differences are only the outward signs of moral characteristics, and a moral calculus is likely to be purely academic and unreal. None the less, non-measurable mental habits are of the first importance to the

social reformer. For the same general reasons it does not appear worth while to try to reduce to the routine of statistics expenditure on luxuries and amusements, whether harmful or harmless, as gambling, betting, alcohol, tobacco, games and shows. In these cases, estimates of the *total* expenditure of a class would be useful, in order to show how far the surplus was harmlessly or badly expended, whether legislative reforms or the application of moral influences were needed, or whether they were successful. But since these expenditures are so irregularly spread within a class and have so little relation to the specialities of the class, it is best not to include them in a description of the standard of living.

By the standard of living, then, I understand a composite of the goods and services obtained in nearly the same quantities by normal families whose general mode of life is similar, and by an economic class I understand a group with a definite standard differing in respect of recognizable and measurable characteristics

·from other groups in the same society or
nation.

Minimum Standards.

As already noted, the phrase standard
of living tends to be confused with the
phrase minimum standard, and this readily
merges into standard of minimum sub-
sistence.   We can perhaps restore clear-
ness to the conceptions by using the
phrase, " the conventional and customary
standard " of a class, when we mean that
which has just been discussed; by speaking
of the trade-union minimum standard
when we mean a standard which a group
of workers are consciously endeavouring to
attain or preserve; and by introducing the
word subsistence whenever we are think-
ing of the minimum on which work can
actually be carried on.   I now propose to
analyse this last conception.

We should distinguish throughout be-
tween the minimum subsistence for an
individual and the minimum for a family
or for a person with dependants.   Actually
the family minimum is the complex ob-
tained by combining (not necessarily by

simply adding) the individual minima of its members, and the question of how or by whom the cost of providing these minima should be met is essentially different from that of establishing the minimum standards themselves.

Actually little attention is paid to the minimum ration on which life can be preserved, without any qualification. It would be at least implied that health, as well as life, should be preserved, and health is not a definite condition—even perfect health is indefinable. Further, there is generally reference to a certain efficiency for work or for other occupation, and efficiency is another of the words which appears to have a clear meaning, but is in reality as vague as heat or fine weather. In engineering, efficiency is simply a ratio between energy obtained to energy used, and varies from zero to unity. In common speech more definiteness is obtained by saying maximum efficiency, but then efficiency has lost its meaning, for we might as well say maximum output. A certain definiteness would belong to the

phrase, " the minimum subsistence neces-
sary for maximum productivity," but that
is quite different from a minimum standard
as generally understood. We ought rather
to regard health and output or efficiency
as dependent on the amount of food
and other necessities available, and say
that output is a function of consumption
alike in machines, animals, and men.
The idea of a minimum would then only
be involved in choice of food, etc., so as
to obtain the amount of nourishment to
which a certain output corresponds, for
the minimum cost in money ; here it
is the output or efficiency that is first
assigned and the minimum expenditure
deduced. In point of fact, this is very
nearly the method followed by Mr. Rown-
tree and the authorities on whom he
depends, for the amounts of nourishment
required by men at leisure, in ordinary
work, and in hard work are considered.
The difficulty is to define the hardness of
the work sufficiently closely to have the
nourishment determined within narrow
limits.

The most important result of these·
considerations is that we cannot say that
this sum of money is sufficient and that
insufficient, drawing a hard and fast line,
but only that on an assigned sum a describ-
able and measurable degree of health
and output can be maintained. If the
sum is increased, health within certain
limits would be better and the output
greater, if decreased the worker would
be less hearty and capable. The rate of
change of health and output correspond-
ing to a given change of amount of
nourishment is quite unknown. If we
regarded a man simply as a producer of·
utilities, like a horse, there would be a
definite position where the cost of an·
increase in nourishment would exactly
equal the increased value of output, just
as in preparing a field there is an econom-
ically determinable amount of fertilizer
that will just pay. This position of
equilibrium or equality would be reached
at quite different levels with different
kinds of work and in different economic
positions. It may be as low as six

·annas a day for a coolie and as high as $5 for a skilled artisan. It depends on the marginal value of the man's work (and that depends on the number of men available) and also on the cost of the particular nourishment necessary for increased efficiency. An equilibrium may be obtained with low living and slow working, or with luxurious living and high pressure, but not with low living and high pressure. It is quite conceivable that agricultural wages may be in equilibrium at 2s. a day in Ireland and 4s. in the Scotch Lowlands, and coal-hewers' at 8s. a day, but there is nothing to prove that established wages are in equilibrium in this sense.

The problem has been approached from the physiologico-chemical standpoint, and the amount of energy-producing and of tissue-forming substances actually used, and not wasted, by men doing various kinds of work have been estimated. Ordinary foods have been analysed to determine the amount of these substances contained in them, and dietaries have

been drawn up that are theoretically. sufficient for work of certain intensity. But I think that it is admitted there is a good deal of uncertainty about the results, and that a large amount of careful and very difficult work is still necessary, especially as to the relation between food consumed and food actually utilized, which must be extremely variable from person to person, and as to the merits of different kinds of food. I have, therefore, still to be convinced that the scale of diet made familiar by Mr. Rowntree has that definiteness which is so often assumed by people who quote his results. I rather regard it as a useful arbitrary measurement of a low scale of living, by the help of which we can compare populations in respect of the adequacy of their wages ; it makes a useful and intelligible line, even if it is not possible to accept it as the Poverty Line, which divides the poor from those who have a competence. There is not, and cannot be, any such division except an arbitrary one, for every quantity involved varies continuously from grade to grade.

This analysis explains the paradox that the food ration used by Mr. Rowntree as a minimum is more liberal, so far as can be judged, than that obtained by the majority of the working class even in Europe now, and by the great bulk of unskilled and agricultural labourers in England before the end of the fall of prices in 1895. The human race has got along on a standard below this minimum, though it may have been hungry, with imperfect health, a high death-rate, and a low standard of efficiency. It is very important to recog--nize this, for it has come as a surprise to many people to learn what a large proportion of even an advanced population is insufficiently fed (unless at the sacrifice of expenditure in other directions), since they have not realized that the diet obtainable from wages of unskilled labour has in past times been generally too low for work of a high grade, and that the poor and the working class were really interchangeable terms in past generations.

I will not stop to discuss the difficulties of assigning corresponding standards to men, women and children, at work and not at work, or of making allowance for habit in diet which prevents people getting the maximum nutriment for their money, or the awkward consideration that the cheapest food in purchasing may be expensive to cook. I am rather inclined to think that such details are unimportant till the standard is on a firmer basis, and that all we can at present get is a carefully-devised descriptive scale corresponding to some arbitrary standard which we recognize as undesirably low.

If we are establishing a minimum standard of food, we ought also to make one for other necessary expenditures. These are house-room, fuel, those household utensils and materials without which the food cannot be cooked or the house used, and clothes. There is again the confusion between the house which medical authority would pronounce adequate for perfect health, the cheapest house which can be obtained, and the minimum of shelter

·which will preserve life ; though the first is a maximum rather than a minimum, not obtainable at present by the majority of the nation, and in the last people are not permitted to live.   It is evident that any standard of housing must be conventional, and this statement will easily be supported by describing housing methods at other times and in other nations.   The only minimum we can name is the worst accommodation obtainable that authority will allow to be used within possible distance of work.   This minimum is, of course, rising, as ideas of housing change and ·local authorities enforce more drastic regulations.   It may be noticed that houseroom tends to become more adequate simply because the size of the family diminishes with the falling birth-rate.   The opinion is quite tenable that the poor are forced to pay for a standard of housing higher than they obtain in food, and that they would make more of their income if they were worse housed and better fed.

If we once realize that washing, the use of knives and forks, sleeping in beds,

sitting on chairs, using carpets and kitchen
ranges, are all conventions, which many
people dispense with, we see that there
can be no necessary minimum expenditure
on household utensils, though standards
have to be enforced for the safety and
health of people who are compelled to
live in a crowded town.

Clothes are in this climate more definitely
necessary, but second-hand clothes are so
cheaply obtained and so difficult to value,
that minimum expenditure can hardly be
stated. Boots are perhaps more personal
and less enduring than coats, but it is
quite doubtful whether they are necessary.

Thus estimates of necessary expendi-
ture on other objects than food are really
conventional ; they measure (in Mr. Rown-
tree's scale) the minimum standard ac-
cepted by, or possible to, the poorest
class carrying on a regular household
existence, and are dominated by the stand-
ard of living otherwise determined, at
the time and place. Nevertheless, it is
very useful to have a definite measure
for testing progress and comparing societies.

[It is well to remember that the Speen-
hamland scale in 1795, which was intended
to make the agricultural labourer as well
off as before that date in spite of the rise of
prices, assigned weekly money wages equal
to the value of 26 lb. of bread (of second
flour) for a man and about 13 lb. for a
woman or child.   At the prices of 1900
in York best bread cost about 3s. for 26 lb.,
and this is precisely Mr. Rowntree's
estimate of the minimum food expenditure
for an adult, while he allows 2s. 3d. for a
child.   In order to reach Mr. Rowntree's
minimum, if we assume that the prices of
sugar, tea and other food, taken together,
bore the same relation to bread in 1795
and 1900 (which is sufficiently close for
comparison, since bread was then the
principal item of expenditure), the wife
would have had to earn an additional
1s. 6d. and the children on an average an
additional 9d., while rent and all other
expenses would have had to be met by allow-
ances and harvest and other extra earnings
or gifts.   Mr. Rowntree's food standard
is therefore considerably higher than that

of the South of England labourer prior to. 1795, at any rate for families where there are young children. The scale was reduced considerably by 1831, when the equivalent of 60 lb. was the arranged money wage for a man with a wife and four children, instead of the 90 lb. of 1795. (See Hammond, *The Village Labourer*, p. 163 and p. 185).]

When determining whether a household is above or below a given standard, it is natural to pool the earnings and other income of all the members of the household and compare the total with the standard as built up for the sex and ages concerned ; this shows whether the household could attain the standard ; but if any of the income is spent by individuals on their own less urgent wants, of course the sum available for food might be too little. In considering the sufficiency of the income to keep the family up to the standard, it is proper to include all money from poor relief, pensions, charity, and the value of gifts ; but in the equally important question of the economic position of the family, relief, charity and gifts (except from relatives who help to

support dependent parents) should be excluded. In practice this distinction is not very important, for relief and charity are frequently insufficient to raise a destitute family to the standard.

The Poverty Line.

The connexion in which Mr. Rowntree's standard is most generally used is in considering what wage is the least on which an adult workman can meet his responsibilities, and it is very generally assumed that it should be sufficient for him to maintain three dependent children and his wife. This is a useful and simple standard, but it requires analysis. If the idea is that wages must be sufficient to allow the next generation to be brought up under parental responsibility, four children per family is probably barely enough to give a very moderate increase of population, when allowance is made for the unmarried and the barren and for deaths before maturity.[1] Again, the

[1] There do not appear to have been many systematic investigations as to the relation between the number of children per family and the growth of population. A rough computation suggests that with the existing death rates of England and Wales if four children were born per

minimum would fail for large families and be unnecessarily high for very small families. Further, there are in many families dependants other than children, namely, parents who are past work and have no resources, and adult brothers and sisters who through ill-health or incapacity cannot support themselves. The numbers of dependants in certain towns were given on p. 83.

In considering a somewhat hypothetical society, we might argue that a man's parents ought to be in a position to provide for their own old age, and that incapable adults should only be supported by their brothers and sisters if they have already fulfilled their obligations to their own wives and children. Further, the older children as they get to work should not have to contribute

marriage, 2·7 per marriage would reach maturity ; these would have to replace their parents and also a share of the unmarried of the previous generation, and provide the increment for a generation. The Scotch census of 1911 shows that the average number of children per completed family (where the mother was over 45 years) was 5 5   Even with this high average the natural increase of Scotland (excess of births over deaths) was only about 1·1 per cent. per annum *circa* the year 1900.

to the younger ones' support, lest they should fall into poverty themselves. I do not mean that this family help is to be deprecated, but that it should not be necessary. Moreover, we ought not to omit the reasonable ability of the wife to earn before the birth of the first child and after the last child has reached school age, when we are considering a minimum standard. Finally, if the parents have before marriage, during the period that they are earning more than the minimum for single persons, saved enough to furnish and start a household, it is as much as can be expected, and it is reasonable to desire that they should be able to meet annual expenses out of income. It would then be easy to compute the minimum expenditure needed year by year for an ordinary growing family. On the basis used for Reading in 1912, with a minimum estimate for rent, the minimum at marriage would be 16s. weekly and would rise gradually to about 25s. in five years and 28s. in ten years, provided that there were four children, all surviving. It would remain at 28s. for a further five years, and then fall

back to 16s. as the children became self-
supporting; each additional child would
add 2s. or 3s. a week to the family expendi-
ture during fourteen years. If the man's
earnings averaged 25s. weekly throughout
the period, and he always saved any excess
above the minimum, he could just meet the
standard for four children without any
earnings on the part of his wife. If, as
might very well be the case, he married on
20s. and increased to 27s. by the end of ten
years, he could attain the same minimum.
In both cases his wife could raise the stand-
ard by occasional work after the youngest
child was at school. It might be argued on
this basis that a man was unable to fulfil
his legal reponsibilities and bring up a
family large enough for a progressive popu-
lation on the very niggardly standard in
question, unless he had a regular weekly
wage of 27s. by the time he was thirty years
old, or ten years after his marriage. In
spite of the vagueness of the standard, we
can use a calculation of this kind as a useful
test of the sufficiency for fairly definite
purposes of the wages in different occupa-

·tions. We should have to raise it or lower
it according as the minimum rent for a
house was above or below the 5s. 6d. reck-
oned as the least for a· five-roomed house
in Reading, and lessen it if we take an
inferior standard for housing. We must also
make allowance for all possibilities of sup-
plementing income beyond a standing wage
(allotments, overtime, even earnings of the
older school-children), but on the other hand
we should allow for failure of work and
illness. ·Finally, it must be emphasized
that it is not known whether a ten per cent.
change up or down would seriously affect
efficiency.

In recent times estimates have been made
as to the minimum on which a single worker,
especially a woman, can live. If she has
no responsibilities and lives as a member
of a household, on the minimum scale just
discussed, she needs about 6s. per week to
include her share of the rent in a town
of moderate rentals. This sum should be
raised when for her employment she has to
dress more expensively, or if we include her
payment for domestic services, which she

cannot dispense with, and for which her work does not leave time or strength, or if she has to lodge away from her relations and the landlady makes profit. The minimum arrived at in this way is hardly comparable with that already discussed, because it involves more convention. Its discussion would lead to the difficult question of subsidized earnings (where a lad or young woman does not earn his full living but is partly supported by his or her parents), and even further into the difference between marginal wages and minimum wages than in the case of family earnings. The problem as to how far women's earnings are sufficient for the support of their dependants in broken families requires more knowledge of the facts than we yet have,[1] and also a difficult analysis of the nature of dependence.

The establishment of a scientific standard of the kind attempted in the previous paragraphs is no doubt important in itself for determining what wages are sufficient

[1] Information has been collected, but not yet completely published, by the Fabian Women's Group, which will show how far women and girls do use part of their earnings to support their relatives.

·from· particular economic and social points of view, but is partly vitiated by the vagueness of its basis ; it can, however, be used quite definitely for a very important social measurement of a different nature, namely, the comparison of two societies separated in place or time. When we have made definite working rules for the calculation of a standard for all kinds of families, it does not matter if they are somewhat arbitrary when we use them for comparison on a broad basis. Thus, to say that 15 per cent. of the families of a district are below a certain standard of living, has an absolute meaning ·only if the standard corresponds to a clear definition of insufficiency or poverty, or if we can visualize the standard by describing the condition of a typical family just at the margin, and it will tend to be vitiated by every imperfection or indefiniteness of measurement. But when we say that in two districts, or in the same district at different dates, the proportions were respectively 10 per cent. and 15 per cent., the ratio of these numbers is little affected by arbitrariness of standard or imperfection of working

rules, if both measurements have been made· in precisely the same way, and if the populations are generally similar in age constitution. Thus, if we have over-estimated the value of women's occasional work, or the cost of feeding young children, or the regularity of work, or if in any respect the standard does not correspond to the minimum for efficiency or whatever its ultimate basis is intended to be, these errors will tend to affect both the percentages in the same direction and (in many cases) by nearly the same amount. This statement depends (so far as it needs justification) on the general theory of averages, but it can· be very often tested by working through the two sets of data by a modified set of rules, and seeing how the resulting proportions vary. The same idea applies to many measurements imperfect in themselves; for example, the test of overcrowding, which results in such a statement that 10 per cent. of the population of a town live in tenements where there are more than two people to a room, is very imperfect for separate households (since crowding de-

·pends on age of persons and size of room), is less imperfect for the town as a whole, and forms a good basis for comparison with other towns where the average size of rooms is the same as in the first. In all such cases, however, it is wise not to depend upon theoretical principles till their applicability to the problem has been tested ; and it must be remembered that differences that are found may result from dissimilarities other than those we wish to observe. Thus it might happen that in one town three small bedrooms were the fashion, while in another two larger ones of the same total size were usual ; the measurement of overcrowding would then reflect the size of the rooms and not the cubic or areal space per person. It is therefore necessary before making numerical comparisons of social conditions in different places to have an intimate knowledge of the general habits of the people and of the general conditions of occupation and living, and to restrict the measurement to those factors which are not vitiated by differences of cus-tom

It is very doubtful whether numerical comparisons of standards can be safely made between two countries ; neither housing, clothing nor food are comparable, the importance of that part of income which is not wages varies greatly, and many things must be bought in one country which are unnecessary or are home-made, home-grown, or obtained freely in another. Nor should we compare industrial classes, such as workmen engaged in building or engineering or printing, in different countries, since methods and conditions of work vary enormously, unless we make very broad allowances for the possible effects of such variation. The only method of comparison that seems to me valid is one which has not yet been carried out. If we could place the families of each of two nations in order of income, as discussed, pp. 97 *seq.*, above, we could pick out a family in each nation one-tenth of the way up the scale which was typical of families in that grade, and place side by side (without numerical comparison) descriptions of the standards of living obtained by the two selected families ; and we could repeat

the process at each tenth of the scale.[1]
Care is needed to distinguish between
such statements as that 10 *per cent. of the
working class households* of a town are below
an assigned standard, 8 *per cent. of the house-
holds* of a town are below, 13 *per cent. of the
working-class population* or 11 *per cent. of the
whole population* are below.   It is best (for
the main statement) to take the whole town
as divisor, not only the working class, since
the definition of the working class must be
vague, and to take the number of individuals
rather than of households, so as to include
lodgers and detached workers.   It is also of
interest and importance to give separately
the proportions by age, sex, and depend-
ence, so as to notice what groups are most
affected by insufficiency ; for example, a
much larger proportion of all children than
of all adults is found in poor households, for
the double reason that families are larger
and size of family is a cause of poverty.
Finally, it is very important to distinguish
between families where there is an adult

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[1] See " A suggestion for the international comparison
of wages by the use of the Median," *Stat. Journal,*
1909, pp 618–623.

male wage-earner in ordinarily regular·
work, the father of the children, if any, and
families broken by the death or illness of its
natural supporter. Remedial measures for
poverty would be quite different in these
cases.· Also it might happen that in two
towns where the percentages below the line
were (say) 10 and 15, 8 per cent. in each
might come from abnormality of the family,
while the remaining 2 in one and 7 in
the other were due to lowness of wage. The
facts measured by the ratio 2 to 7 are
quite as important as those measured by
the ratio 10 to 15.

I have written as though the standard were
used for measuring amount of poverty
because that has been the case so far ; but
we evidently might use similar standards for
measuring the proportion that were wealthy
or in any degree of comfort.

When we have material for making com-
parisons over a period of years, it will be
interesting to test how far the diminution
of the birth rate and of the size of the family
has resulted in the maintenance of a higher
standard of living.

·ECONOMIC PROGRESS

CHAPTER IX

In the previous sections I have discussed
the definition of a nation or society, and
analysed the classification of the individuals
and families which compose it by the process
of placing them in order of economic pros-
perity and selecting lines of division. I then
suggested methods of selecting families, in
some cases typical of classes that could be
adequately described, and in other cases
occupying a numerical, defined position in
the economic scale. The measurement of
the economic condition of a society is com-
pleted when the number of its members
(classified by age, sex, and civil condition)
is known, and the standard of living of the
selected families (together with their constitu-
tion and the nature of the occupation of their

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earners) is fully described. I have also. proposed a secondary measurement on the basis of first defining a standard of living and then ascertaining what proportions of a society attain or fail to attain it.

I now proceed to consider how the progress of the whole nation or society can be measured.

Population.

First, we must consider the number of persons to be included in a nation. As discussed above (p. 18), we have three categories : (1) those who are legally subjects of a monarch or citizens of a state and resident in its territory, (2) subjects or citizens resident outside the territory, (3) foreigners resident in the territory ; these should as far as possible be kept distinct.

Since the population is heterogeneous in age and sex, the statistics of the growth of the total are not complete till the proportions of different groups are analysed. It is, of course, conceivable that birth, death, marriage and fertility rates should all be constant and that a population should grow

·by equal expansion of all age groups, un-
affected by emigration or immigration ;
and these rates might be different in differ-
ent nations, each of which preserved its own
age distribution.

Actually all these rates have changed
considerably in the last thirty years, and
many nations have been affected by migra-
tion of groups of special ages and sex.   In
some countries the proportion of men in the
prime of life has diminished relatively to
the population owing to continued emigra-
tion.   In others that have become settled,
the abnormalities have gradually been re-
moved.   In Great Britain the fall in the
birth and death rates, diminished fertility,
and probably a rise in the average age of
marriage, have modified the composition of
the nation in a very marked way, which is
showing itself in the falsification of many
forecasts, administrative and actuarial.
Whereas in 1881, for example, there were 163
men.between the ages of twenty-five and
fifty-five per 1,000 of the population enu-
merated in Great Britain, there were as
many as 189 in 1911.   For these purposes

it is advisable to treat Ireland separately; since her population has been subject to different influences. In Germany the proportions were 180 in 1910, in France nearly 200 in 1906, and in U.S.A. 202 in 1901. This kind of analysis is suitable when we are considering the productive ability of the inhabitants or its potential military strength. Other groupings would be necessary if we were considering the number of persons supported by the productions of the territory, since at different ages quite different amounts are needed and consumed. I do not know of any purpose for which crude statements of the rate of growth of total population are useful, except for showing differences whose cause should be sought.

It is not to be assumed that growth of population necessarily involves progress. The words of Isaiah (ix. 3) in the Authorized Version are : " Thou hast multiplied the nation and not increased the joy " ; but in the Revised Version we read : " Thou hast increased the joy." This alternative is precisely that which economists have to

consider, only they would speak of the determination of that number whose marginal productivity was a maximum. For statistical purposes we should regard the number and growth of the population, after attention has been paid to its change in composition, simply as a framework into which other measurements can be fitted.

Money Income.

The economic progress of an individual might be considered by tabulating his income year by year and placing it in relation both with his natural responsibilities and with his labour in obtaining it. For a society, we should similarly consider the total income, the amount of work devoted to obtaining it, and the number of dependants or non-effectives to be supported ; but we must add a reference to the distribution of the income. It is customary to divide estimates of national aggregates by the number of the enumerated population and give *per capita* results thus : the value of Foreign Trade (Imports and Exports together) is £25 per head, the average income

is estimated at £45, the average of capital owned as £200, and so on. Such averages by themselves are open to two valid criticisms— the first, that neither the numerator nor denominator are homogeneous, and that the relationship between items in numerator and items in denominator varies enormously; the second, that for nearly all practical purposes the distribution about the average is as important as the average itself. As already emphasized, it is in the analysis of the change of these averages from time to time that their use is found.

The aggregate income of a nation consists of receipts from ownership, payments in return for work, and the value of unpaid services, together with some less important items. We cannot, however, estimate it readily in these divisions, for income derived from use of capital by its owner (included under the term profits) contains an inseparable proportion of earnings, and (as shown above) unpaid services are very often incapable of valuation. Practically two methods have been used for estimating the total income, and both ignore unpaid

services.   One is from the side of produc-
tion, as in the report of the Census of Pro-
duction, where the net product of all firms
producing material commodities is ascer-
tained as far as possible, and estimates are
added for the value of transport, dealing,
utilities derived from the direct use of
capital, goods, and services ; this is evi-
dently a mixed measurement, which is only
made complete by including a good deal
from the side of consumption. The second
method is to ascertain the income of groups
of individuals and of corporations, and add
them together. As is well known, the
Inland Revenue Tax Commissioners do not
ascertain the incomes of all individuals who
are subject to the tax, since it has hitherto
proved unnecessary for the adequate collec-
tion of the money ; it has been sufficient to
require returns from individuals of only
that part of income which cannot be taxed
at its source, and to ascertain individual
incomes only in those cases where relief was
claimed or where there might be liability
to super-tax.   Consequently we can only
estimate the incomes of individuals by the

use of Pareto's law (p. 106) or some other method of approximation. There are no official statements, even of the aggregates,[1] of incomes below £160.

We cannot make a successful private investigation, even by sample, of the incomes of any but the working class, and perhaps of others with small salaries, for people are unwilling to disclose the amounts of their incomes, especially when they are derived from property. We are therefore dependent for knowledge of incomes above £160 on the definitions, data and tabulations of the Inland Revenue Commissioners. On the whole it is possible to identify fairly closely the sums that correspond to income in the economic sense, when the details of abatements and exemptions are carefully handled, but there are two large classes where there is no guarantee that the estimates are correct. Traders make their own returns of their profits, and if they do not keep accounts that could be audited there is

[1] The Board of Trade has given rather vague estimates of the total of wages, but these are not official statements of ascertained facts in the ordinary sense.

no means of verifying their statements of income, which it is to their interest to under-estimate, and the actual definition of profits is by no means simple ; there is accordingly considerable uncertainty as to the adequacy of the returns under Schedule D. Again, farmers are not expected by the authorities to keep accounts, and their income from cultivation is simply estimated as one-third of the rent they pay. A farmer paying rent for 479 acres at £1 per acre would, therefore, be assessed at £159 13s. 4d., and be exempt from tax. Common observation would suggest that he and his family are living on a higher standard than a clerk's family in a town receiving £160 a year ; the basis is very arbitrary, and so crude that even if it were correct for farmers in one district, it would be incorrect for those in another. It would, however, be possible for agricultural experts to estimate limits for farmers' incomes, within perhaps 25 per cent of the total ; but for traders there seems no method for determining what error may be involved.

Income derived from ownership can be·

identified, and the Inland Revenue Com-
missioners have probably sufficient powers
already to complete their survey of it. That
part on which tax is paid (whether returned
or not) is known, and the sums which are
received untaxed by persons whose total
income is less than £160, and which are not
in all cases tabulated in the Commissioners'
Report, are not a large proportion of the
whole.

Earned income, not subject to tax, is
generally estimated by investigating the
average salaries and wages of various classes
and multiplying them by the supposed
number of persons in these classes. The
most difficult cases are the profits of small
traders and manufacturers, and of those
salaried occupations and professions where a
considerable proportion have more than
£160, for we need to know then the average,
not of the whole class, but of that part
which is not liable to income tax. How-
ever carefully intermediate income (that is
income below £160 and not regarded as
wages of manual labour) is estimated, the
margin of error must be large ; but the

.limits of this error can be fairly well as-signed, if we can depend on the estimates of the numbers in the classes.

As regards wage-earners, we depend chiefly on reports of average weekly wages, which are elaborate and have no great margin of error.   The difficulty is to know what allowance is to be made for holidays without pay, sickness, unemployment and overtime. Information is accumulating as to most of these doubtful factors.   There is the further difficulty. that a considerable number of persons, who return themselves as belonging to a specified occupation at the census, may be quite irregularly employed, and generally the number and earnings of casual workers are not known.

The aggregate result of all these uncer-tainties may be a margin of 10 per cent of error on the estimated total of incomes, apart from difficulties of definition.   Fortunately most of the errors in estimates are in the same direction at different periods ; omissions in returns of profits will always be omissions, an overestimate of the number in a class will be repeated, and so on ; so that

the movement of the total income can be estimated more accurately than the income itself, especially if very careful attention is paid to changes in method and efficiency of assessments and estimates.

The income generally estimated is that of persons living in the country, or deriving income from the country. This is evidently a mixed total, and if the method was adopted in all countries, the apparent total income of the world would include a great deal of duplication. The better method is to exclude income drawn from without when we are thinking of the productivity of a country; a very great deal of this external sum is ear-marked in the Inland Revenue Report, and estimates have been made of the remainder. On the other hand, if we are considering the number of personal incomes of various amounts, we ought to include income from abroad, and exclude income paid to non-residents, even though taxed in the country. I am not aware of any estimates as to the amount which should thus be excluded.

The division between income from earning

and owning can, if arbitrary but uniform rules are made for classifying profits, be made sufficiently definite to be useful.   The Income Tax classification shows rent for land and buildings in Schedule A and interest of certain kinds in Schedule C.   All the incomes in Schedules B (occupation of land) and E (salaries) are earned, and part of the remaining and most comprehensive Schedule D is definitely earned and so classified, while in another part earnings are not distinguished from profits and interests.   If any reasonable division is made for this uncertain part, and its principle maintained for a series of years, the growth of unearned income can be ascertained with only a moderate margin of uncertainty, if the alterations of compilation are carefully studied.   More material is now becoming available in the statistics which are or may be tabulated in connexion with the differentiation of the income tax in favour of earnings.   The growth of earned income is more difficult to measure, because of the great uncertainty of the numbers and amounts of small salaries and earnings other than wages.   It

is probable that this intermediate income has grown very rapidly, and that if we ignored it we should underestimate the growth of earnings. In the future it will be possible to make a closer estimate of the relative growth of earned and unearned income, owing to the information that may be published as to the amounts taxed at the lower rate for the former. The available statistics suggest that the growths were at nearly the same rate in the last forty years of the nineteenth century, and that earnings may have lost ground in the last ten years. The statement often made that income-tax returns have shown a greater increase than the records of wage-changes since 1900 is true, but it needs a great deal of qualification ; in particular estimates are not yet available for translating the statement into terms of growth of earned and unearned incomes, if only because much of the former is contained in the income-tax returns.

Real Income.

When we have satisfactory estimates of total income, we have still to study its

relation to goods and services. An ob-
vious, if crude, correction would be by the
use of index numbers of the purchasing
power of money ; but, even if we can get
over the trouble of deducing retail price
changes from wholesale, index numbers
still refer to commodities and not to ser-
vices directly rendered.˙ In particular,
ordinary index numbers do not include rent,
which affects all classes, and the poorer more
closely than the richer, nor domestic or
professional services, which affect the rich
rather than the poor. These together
account for perhaps a fifth or more of expen-
˙diture, and it is quite likely that they have
become dearer in a period during which
commodities have become cheaper. Per-
haps we might find outside limits for this
disturbance, but we should still be in diffi-
culties because of the continual invention
and increasing use of new commodities and
new devices for spending money, which
cannot be included in index numbers.

Again, as a country becomes more densely
populated, the free gifts of nature are appro-.
priated and become marketable, and their

annual value is included in somebody's
income. Allowance is made in estimates
of agricultural labourers' wages for the free
fuel they used to have ; but no allowance is
made for scarcity of blackberries, nuts,
mushrooms, etc., when they are improved
away by building or closer cultivation, nor
for the greater or less enjoyment of fresh air
and scenery. The marketable value of such
things is now expressed in rent at health
resorts. This question, if continued, would
lead beyond my subject into an economic
investigation as to the nature of rent ; for
the present purpose, it would be sufficient
if we could add to national income at all
dates a valuation of natural gifts freely en-
joyed, just as we ought to add a valuation
for personal services freely rendered if that
varied. It need hardly be said that only
fantastic measurements could be made.

Allied to the variation in time of the
purchasing power of money is the variation
in place (within a country) and variation
between classes. We could, of course, take
- the position that there is sufficient mobility
of persons, labour and capital to ensure that

·£1 has the same value wherever, at whatever season, or by whom spent ; but in fact, purchasing power varies between town and country, north and south, England, Scotland and Ireland, and it is very doubtful whether people's choice of residence, is influenced much by these variations. If we were attempting to make some measure of intrinsic value or satisfaction, we should, of course, have reference to the difference in marginal utility of £1 or 1s. in the hands of the rich and of the poor ; but we can evade this difficulty by combining with the estimate of the total a measure of the irregularity of its distribution, whether we accept the theory that equality of distribution would maximize satisfaction or not.

An even more serious obstacle to attaching any useful meaning to the aggregate of incomes for comparative purposes, or for measuring a concrete quantity which might perhaps be distributed differently, is obvious in economic analysis. The values included in incomes are values in exchange, which are dependent not only on the goods or services in question, but also on the whole

complex of the income and purchases of the whole of a society. For example, after a redistribution of wealth, a box at the opera for the season would not exchange for the same number of pounds of meat as it does now. ⁏ The numerical measurement of total national income is thus dependent on the distribution of income and would alter with it. It is not an aggregate of goods and services, nor of a number of pieces of money, but of exchange values. If the quotient of aggregate income when divided by population is £45, it does not follow that if the income itself could be divided equally among the population that the £45 would have the same purchasing power as before ; it might prove to be greater, or it might prove to be less, and it is doubtful whether any statistical method could ascertain which would be the case.

Notwithstanding all these difficulties and cautions, we can attach a meaning to *changes* in aggregate income over a period not long enough to allow any great reconstruction of society or alteration in commodities purchased. With· even greater

caution, we might be able to compare the total incomes of two nations.

It should be observed that in all measurements of this kind changes in totals or averages may be so great as to make it certain that qualifications and corrections would not override the change; while small changes might easily be nullified by such corrections. The trouble from the point of view of scientific measurement is that we cannot always estimate any limit to the margin of error, so that an element of complete uncertainty or guesswork may remain.

Change of Distribution of Income.

As regards the measurement of the distribution of total income among individuals and its change, the most satisfactory way would be to find a mathematical formula for the distribution and study the change of its constants. If Pareto's law can be shown to apply sufficiently closely, the line representing the number of persons becomes flatter—the quantity a in $\log N = C - a \log x$ and becomes less—as incomes become

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more equally distributed. This process can already be applied to the assessed values of houses (whose distribution in Great Britain is well represented by Pareto's formula), and if the relation of rents to incomes and its variation could be established, this problem of measurement would be solved. A growing uniformity of distribution of income would be shown by a change from a contrast between hovels and mansions to a general growth of mediocre serviceable small houses. Casual observation of the buildings of the last thirty years would suggest that the change has been in this direction.   o

The phrase "the rich are growing richer and the poor poorer" is nearly meaningless, unless there are definite groups which can be called rich and poor respectively. As it is we must, in a study of change of distribution, allow for a continuous grading. Apart from Pareto's equation several simple methods are conceivable, some of which have been used with fair accuracy : (1) By equal divisions of total income, thus : one-tenth of the nation's income is received by

`the 20,000 [1] (or whatever the number may be) richest persons, or by one four-hundredth of the families of the nation ; another tenth by the 100,000 next richest, and so on till the last tenth accrues to the bulk of un-skilled labourers and their families. This is one of Mr. Chiozza Money's methods, ex-cept that the fractions cut off successively by him are not equal.   (2) By equal numerical divisions of income receivers : thus, if there are 10,000,000 family incomes in the United Kingdom, one million[1] are above £200, another million between £150 and £200, and so on, the last million being below £50. This is the method of deciles, quartiles and medians ; it has been used in one form or another for wage statistics, and it is, in my opinion, the best method of giving a numerical description (for the reasons dis-cussed above) for an instantaneous view, since the incomes at the dividing points can be determined with more accuracy than aver-age and total incomes.   It has the further

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[1] These numbers are purely hypothetical, except that they are chosen with some reference to conditions in the United Kingdom.

advantage that it is readily applicable for
describing changes. For studying the
progress of the rich we should watch the
highest percentile, of the well-to-do that of
the highest decile, of the poor that of the
lowest decile. (3) We can assign particu-
lar incomes—say, £40, £60, £100, £1,000,
£10,000—and calculate the proportionate
number of families in each grade from time to
time ; thus at one period a fifth of the in-
comes might be under £40, a quarter between
£40 and £60, etc., and at a later date one-
tenth under £40, a fifth between £40 and
£60, etc. In this form the movement would
be difficult to follow. (4) Instead of using
the last method throughout, we could assign
a minimum standard, such as that used
by Mr. Rowntree, and either confine
ourselves to adult men's incomes and
reckon the proportion who fail to reach,
say, £70 from time to time, or adapt the
scale as before (p. 119) to families of
different constitutions, and reckon the
percentage of families below the standard
at different dates. If we use the last
method, we can modify the standard to

allow for change of prices, and express the result in relative numbers of families, or of persons, or separately for men, women, and children. No doubt this method will be used in the future, taking as a basis the proportions indicated by the investigations, official and other, recently made, or still in the making. There is, perhaps, no better test of the progress of a nation than that which shows what proportion are in poverty; and for watching the progress the exact standard selected as critical is not of great importance, if it is kept rigidly unchanged from time to time.

• If we use the method of deciles, or the method of minimum standard, we can free ourselves from many of the difficulties that were found in the analysis of total income. The margin of uncertainty due to the ambiguity in the definition of a nation will have little effect on the deciles or the number below the standard except in so far that recent immigrants are in the poorest group; if this were investigated, here and in the United States, the results would be very interesting, as showing the

effect of immigration on the standard of
living of the country. The difficulties
about the purchasing power of money,
about the meaning of exchange values,
and about free services, hardly affect the
placing of families in the order of their
income, and are completely allowed for in
establishing a minimum standard. In the
decile method, if we have established that
in 1860 the position of the second decile
from the bottom was at a family income
of £50,[1] and in 1913 at £70,[1] we should
proceed to study in all practicable detail
the standard of living obtained by families
with these incomes at these dates. The
choice of these fixed positions serves as
an easily intelligible and quite definite
framework ; the descriptions transcend
the measurements and enable us to form
direct judgments of progress.

Progress of Classes.

Any of these methods can, of course, be
applied to any definable district or class.
There is danger, however, in dealing with

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[1] These are hypothetical figures.

a single class and measuring its progress only. Progress may take place by increased opportunities for passing from one class to another. Suppose that we define the manual working class satisfactorily in one generation and then watch the formation of the class falling within the same definition a generation later. Some of the daughters may have married into the middle class, some become milliners working for themselves and employing others, some cashiers, typists, or clerks, and some school-teachers. On the other hand, the daughters of the middle class do not readily work in a factory or go out to ordinary service. Of the sons of the working class some may emigrate, others win scholarships to secondary schools, and become clerks or teachers, and in a few cases go forward to a university. In a similar way the more enterprising and able of the unskilled workers will move up a grade, and their children, probably, move into a higher grade still.[1] There will also be a backwash of the relative failures of one

[1] See p. 89.

class into the class below, but they · are more likely to fall out of regular occupation ; a bad clerk will not make a good artisan, nor a bad artisan a good labourer. Every one recognizes that this process has gone on in the cases of Ireland and of agricultural labour. The pick of the younger generation has gone to other countries, or to other occupations.

Though statistics relating to the middle class are very imperfect, there is no doubt that its numbers have grown relatively to the population as a whole, and that it has been recruited, by some of the steps named, since the prevalence of free educa- · tion, from the children of manual workers. It is, of course, not possible to compare the aggregate or average incomes of any class with that of their descendants, even if any definite measurement were conceivable, when classes are so intermingled. We cannot be certain even that of two artisans' sons the one who becomes a clerk will have a larger income than the one who remains an artisan ; but in considering the progress of an isolated class we

..must bear in mind that a selective influ-
ence has been at work, which has presum-
ably modified its ability. With this under-
standing, we may treat the wage-earners
in a defined list of industries as a statistical
group and watch the change of their aver-
age income and of the deviation about
that average. A particularly interesting
measurement can be made of the change
of wages in occupations where the pro-
cesses have not changed in recent times, for
example, those of shepherds and bricklayers.
In connexion with such measurements
we should always return to the concep-
tion of the nation as a whole, and find the
position of the class and its proportion to
the whole.

In considering the adequacy of income
and the changing standard obtained by
a person in a defined position (such as the
median) in a nation, we ought to pay atten-
tion to his responsibilities, to the help he
receives from society and to his compulsory
payments. The introduction of compul-
sory education and the rise in the age of .
leaving school have made the whole cost

of bringing up a child, till he earns his own living, greater ; rates and taxes have been a varying proportion of income, with different incidence according to the amount of income ; recent changes have tended to return a growing proportion of taxes in one form or other to the working class ; the average number of children in a family has diminished ; old people are relieved by Old Age Pensions ; the facilities for self-support have probably increased for young women ; while boys of the working class obtain wages sufficient for a fairly good standard of living as soon as they get to work. When these factors are measured, it will, I expect, be found that the family income required to provide a given standard is falling (after allowance for changes of prices have been made) for a great part of the population. On the other hand, public authority insists on a rising minimum standard in some respects, whose cost in part falls on the persons who are forced to maintain it, and this makes the measurement of a constant standard troublesome.

To complete this general measurement of progress, we have to pay attention to the change in the disutility of earning an income. We cannot, of course, measure the actual satisfaction or dissatisfaction of work, but some allied quantities are capable of measurement. No complete study has been made of the hours of work, but in very many industries and occupations it is known that they have decreased from time to time, even when allowance is made for additional time spent in travel, and a weekly half-holiday becomes continually more general. While it is alleged that the intensity of work has increased, it is certain that mechanical aids are continually relieving muscular effort. Other possible measurements are of accidents, and amount of illness, with their compensation or relief by insurance. All these will help to form a composite picture of the change of the general hardship of work, but will, of course, not give a numerical result.

Other Measurable Changes.

It is natural, when considering the pro-

gress of a nation as a whole, to pay attention to the change of the economic position of its members, for this dominates the occupation of their time and their opportunities for satisfying their desires; but there are many other measurable changes which statesmen must observe and of which statisticians must give·an account, some of which I will enumerate.

The alteration of the density of the population as a whole is, of course, exactly proportional to that of the population itself, when the area is unchanged, and needs no further discussion; but the change in the areal distribution of the people is of· great interest and importance, and should be followed according to the analysis of Chapter III. It is well known that during the last fifty years the growth of the numbers of inhabitants of different parts of the United Kingdom (as of all progressive countries) has varied greatly; the moorlands and mountainous districts remain as empty as ever, and even lose in numbers; the rural population of the cultivated areas only increases under specially favourable

conditions ; the growth of the nation is found in the coal-fields, the manufacturing areas and the great towns. The study of these changes is obviously of the first importance, but as its only difficulty is the delimitation of areas I do not propose to discuss it.[1]

Again, no analysis of the growth of a nation is complete, and no forecast is possible, without an account of the birth, marriage and death-rates. In the handling of each of these, specialized statistical technique is necessary, and the crude rates (where the annual numbers are divided by the number of thousands in the population) need modification to allow for the changes in age and sex constitution, already indicated, before any use can be made of them. In particular, infant and child mortality must be studied separately. Material for examining the birth-rates and the size of families in different social classes is now accumulating, and the alteration of the age constitution of the nation, which

[1] For a general analysis of the changes of rural population in England and Wales, see the *Statistical Journal*, May, 1914.

is proceeding with almost unexampled rapidity, can now be analysed and studied, and its probable effects forecasted. The changes in social and economic conditions resulting from these movements are certain to be far-reaching, and will modify the constitution of households as well as the relative sizes of classes.

The changes in the relative numbers of persons in various industries and occupations is closely related both to areal distribution and to age grouping. Unfortunately, the difficulties of classification are so great that only very broad changes can be observed and only on the lines of division discussed on pp. 57 *seq*. There is, for example, no means of telling whether the proportion of skilled to all labour is increasing or diminishing, nor whether a greater or less demand is made for intelligence in modern industry. On the other hand, it is possible to draw conclusions as to the relative growth of the numbers of those engaged in professional, clerical and manual work, and (with less certainty) of the numbers rendering direct services as contrasted with

.those occupied in producing material goods. There are no data as regards the economic categories of landlord, capitalist, entrepreneur and earner. Our failure to make adequate delimitation of industrial or social classes involves equal failure in measuring their change.

Conclusion.

The question naturally arises as to whether official or private collections of statistics are on the right lines for making adequate social measurements possible. The former are fairly successful in providing data for administrative needs ; and, in fact, if there were a central controlling statistical organization and a better supply of intelligence (which is much more important than money ، for this purpose) devoted to the accumulation of just that information which is wanted to make the various groups of existing statistics complete for the whole nation, and if the more important inquiries were repeated ،more frequently, we should have the general framework of measurement fairly complete.

On the other hand, private inquiries are often directed to the study of isolated phenomena or to a special and badly-defined class, and are not arranged to fit into any general measurement of society. They very often serve their immediate purpose of proving the existence of some evil, that may possibly be remedied, and showing that it is on a scale sufficiently large to call for attention ; but they are uncorrelated with each other or with official statistics. The functions of private investigation, in the general task of the numerical description of a society, are to fill in the gaps left by official statistics, as a temporary expedient, to make estimates with a greater margin of uncertainty than is countenanced by the official mind, and above all to make intensive observations in those places and of those persons or households which official statistics show to be typical or to occupy a definite place in some scale, and so to interpret the meaning of the barren tables in terms of human significance.

In conclusion, we ought to realize that

measurement is a means to an end ; it is only a childish mind that delights in numbers for their own sake. On the one side, measurement should result in accurate and comprehensible description, that makes possible the visualization of complex phenomena ; on the other, it is necessary to the practical reformer, that he may know the magnitude of the problem before him, and make his plans on an adequate scale.

APPENDIX

The following tables give detail of the 193 households referred to on p. 89, where one or more of the children at work and living with their parents was apparently settled in an occupation of a different social grade to that of his or her father.

The following abbreviations have been used in the tables :—

S. . . Son.	typ. . . typist.
D. . . Daughter.	asst.. . . assistant.
L. . . Labourer.	appr. . apprentice.
F. . . Factory.	f. cutter. fustian cutter.
sh. . . shoe.	P.O. . Post Office.
cl. . . clerk.	? . . unknown.
off. . . office.	

In order to show how one should read the entries, let us take the first entry on the table of children in Northampton in a higher social grade to that of their father. It reads as follows :—

Father (age 56) is an unskilled labourer with a weekly wage which is unknown. He has one son and two daughters, all of whom are skilled workers. The son, who is 25 years old, is a shoe " finisher " with a weekly wage of 28s. The two daughters are both " cleaners " in a shoe factory—the one of 22 years receiving 9s. a week, while the other (20 years) receives 13s. There are no other children at work.

NORTHAMPTON—CHILDREN IN HIGHER SOCIAL GRADE

Father.			Children in Higher Social Grade, stating relationship, age, occupation, and wage	Other children, stating relationship, age, occupation, and wage.
Age	Occupation.	Weekly Wage		
			I. UNSKILLED TO SKILLED.	
56	. . . . .	?	S (25), sh. finisher, 28/—; D (22), sh. cleaner, 9/—, D. (20), sh. cleaner, 13/—	
50	L. . . .	22/—	S. (14), sh. room, 5/—	D. (19), laundress, 10/—
51	L.—golf links.	20/—	S. (26), sh.-legging room, 18/—; S. (22), pad manuf., 16/—, S. (20), paring manuf., 14/—, S (15), sh. channeller, 10/—; D. (18), sh. skiver, 11/—	S. (28), porter, 16/—
54	L. . . .	18/—	S. (20), foundryman, 12/—; S. (16), shopman, 8/—; D (18), sh. 10/—	
58	L.—corporation	24/—	S (21), sh. 28/—, S. (19), sh., 20/—; S. (17), sh., 15/—	
40	Wood L. .	24/—	S (19), sh. closer, 12/—	S. (16), mill lad, 12/—
44	Bricklayer's L.	20/—	S. (14), sh., 6/—; D. (18), sh., 9/—; D (17), sh. 9/—	
63	Plasterer's L.	32/6	S. (25), wood-turner, 25/—; D. (27), sh., 17/—	
57	Blacksmith's L.	?	S. (18), sh. rough stuff, 15/—; S. (17), sh., 9/—; D. (22), sh.-legging room, 10/—; D. (14), sh., 4/—	
50	Brewery L. .	@5/—	S. (21), tailor's cutter, 18/—, S. (22), engineer, 28/—	
64	Currier's L. .	22/—	S. (34), sh. clicker, 30/—; D. (21), sh. machinist, 16/—	

60	"	?	S. (24), sh., 15/–; S. (18), sh., 18/–	S. (30), paper-hanger, ?
48	Carter	19/–	S. (18), sh.-making room, 12/–	
48	"	23/–	S. (18), last fitter,?; D. (17), sh. machinist, 7/–	
58	Carman	22/–	S. (27), sh. clicker, 12/–; S. (21), sh. pressman, 23/–; S. (15), sh. clicker, 8/–; D. (19), sh. finisher, 11/–	S (16), butcher-boy, 9/–
48	Vanman	21/–	D. (20), sh., 14/–; D. (18), sh. skiver, 11/–	
50	General dealer	?	S. (18), 23/–; S. (17), sh, 19/–	S. (32), sh. L, 20/–; S. (24), sh. L., 20/–
50	Dustman	?	S. (26), sh. clicker, 28/–	
50	Tube sweeper	24/–	S. (25), sh finisher, 30/–; D. (18), fitter, 12/–	
46	Sweeper	25/–	S. (17), sh clicker, 13/–; D. (19), "skin" cleaner, 8/–; D. (16), sh., 4/–	S. (15), bottler, 8/–
60	Porter	20/–	S. (27), last works, 40/–; D. (18), sh., 9/–	
50	"	14/–	D. (16), sh. machinist, 10/–	
41	"	19/–	D. (15), sh. machinist, 5/–	
53	Blacksmith's striker	21/–	S. (18), last works, 12/–	
45	Fruit picker	7/–	S. (20), sh ran tacker, 25/–	
55	Shoe-waxmaker	24/–	S. (21), tailor's cutter, 25/–; D. (19), blousemaker, 17/–	S. (24), cardboard boxmaker, 22/–
40	L.	20/–	S. (18), sh. fitter, 15/–?	
61	L.	18/–	S. (30), printer, 25/–; S. (26), printer (invalid), 10/–; S. (18), printer, 10/–	
64	Grocer's warehouseman	15/–	D. (24), sh. fitter, 15/–	D. (40), boxmaker, 13/–; D. (17), boxmaker, 10/6

NORTHAMPTON—CHILDREN IN HIGHER SOCIAL GRADE—*continued*

Father.			Children in Higher Social Grade, stating relationship, age, occupation, and wage.	Other children, stating relationship, age, occupation, and wage.
Age.	Occupation.	Weekly Wage.		
			II FATHER AND SON SKILLED, BUT LATTER IN BETTER POSITION	
62	Sh. repairer	10/-	S. (20), motor driver, 27/6 ?	
50	Sh. finisher	30/-	S. (23), sh. 35/-	S. (16), sh. clicker, 8/-
			III. SKILLED TO CLERK.	
60	Enginedriver	45/-	S. (22), cl., 25/-; S. (15), off. boy, 6/-	D. (24), sh., 12/-; S. (18), ? 15/-
75	Painter—Royal Navy	?	D. (25), typ., 20/-	
52	Police	pension	D. (19), cl., 12/-	D. (24), machinist, 12/-
60	Signalman	24/-	S. (22), cl., 30/-; S. (18), cl., 20/-	D. (30), dressmaker, 10/-; D (27), stationery asst., 12/-
50	Sh. welter	40/-	S. (19), cl., 21/-	D. (22), sh fitter, 15/-; S. (17), grocer's asst., 8/-
43	Sh. finisher	35/-	D. (15), cl., 8/-; S. (13), cl., 6/-	D. (23), dressmaker, 10/-, D (18), tailoress, 6/-
47	Stonemason	40/-	S. (21), cl., 20/-	
55	Fitter	45/-	D. (19), cl., 8/-	D. (33), sh. fitter, 15/-; D (30), blousemaker, 10/-; S. (23), metal-turner, 32/-; S. (21), metal-turner, 10/-

44	Coachbuilder	45/-	S. (16), cl., 7/-	S. (19), process worker, 20/-; S. (18), engineer's appr, 16/-
58	Sh. finisher	30/-	D (18), cl., ?	D. (25), forewoman—millinery, 20/-; D. (22), tailoress, 18/-; D. (20), milliner, ?; D. (16) blousemaker, ?
52	Postman	32/-	S. (15), off. boy, 7/-	S. (27), L , 21/-; S. (22), painter, 30/-; D. (25), sh., 16/-
45	Foundry—foreman	50/-	S. (21), cl , 25/-	D. (22), blousemaker, 14/-; S. (16), sh.
58	Engineman	25/-	S (19), cl., 14/-	(20), sh., 11/-; S. (16), rough stuff, 11/-
50	Gardener	20/-	S. (18), cl., 16/-	S. (18), bookbinder, 12/6, D (15), blousemaker, 6/-
51	Postman	29/-	S. (17), cl , 11/-	
35	Jointmaker	23/-	S (15), off. boy, 8/-	S. (26), sh. edge settci, 35/-; D (24), blouse packer, 13/-; S (21), compositor, 11/6; S (19), sh., 22/-; S (15), sh.- making room, 11/-
51	Foreman—sh. finisher	?	S. (17), cl , 15/-	
47	Foreman—sh.-making room	38/-	D. (19), typ , 20/-	D. (22), shop. asst., 12/-; D. (23), shop asst , 13/-
47	Sh. finisher	31/-	D. (21), cl , 13/-	
41	Sh. rough stuff	30/-	D. (15), cl, 6/-	

APPENDIX

NORTHAMPTON—CHILDREN IN LOWER SOCIAL GRADE

Age	Father. Occupation.	Weekly Wage.	Children in Lower Social Grade, stating relationship, age, occupation, and wage.	Other children, stating relationship, age, occupation, and wage.
			I. CLERK TO SKILLED	
38	Cl.	40/-	S. (16), sh. last maker, 9/-	
45	Cl.—railway	30/-	S. (16), steel worker, 12; S. (14), motor cleaner, 5/-	S. (25), sh. mill scorer, 30/-; D. (23), blousemaker, 13/-
			II. SKILLED TO UNSKILLED	
50	Sh. finisher	45/-	S. (18), storekeeper, 14/-	S. (21), tailor, 25/-
54	Head gardener	30/-	S. (17), lift-boy, 10/-	
60	Gardener	18/-	S. (30), fish hawker, ?; S. (27), greengrocer hawker, ?	S. (15), boilermaker, 8/-
45	Rough carpenter	30/-	S. (18), L, 18/-	
56	Enginedriver	45/-	S. (17), L, 10/-	
50	Lathemaker	25/-	S. (18), grocer's porter, 12/-, D. (21) and D. (16), F. "hands," 10/- and 7/-	
57	Sh.	6/-	S. (21), milkman, 17/-	S. (25), grocer's asst., 20/-; D. (18), sh., 8/-
45	Currier	28/-	S. (17), porter, 12/-; S. (15), porter, 11/-	
41	Foreman—sh. closer	45/-	S. (16), storeroom, 6/-	
45	Goods tracer	30/-	S. (18), cleaner, 16/-	
45	Sh. clicker	30/-	S. (16), cinema attendant, 10/-	
50	Painter	30/-	S. (14), van-boy, 3/-	D. (14), pinaforemaker, 5/-
56	Sh. clicker	31/-	D. (32), off. cleaner, 8/-	

WARRINGTON—CHILDREN IN HIGHER SOCIAL GRADE

Father Age	Father Occupation	Weekly Wage	Children in Higher Social Grade, stating relationship, age, occupation, and wage	Other children, stating relationship, age, occupation, and wage
			I. UNSKILLED TO CLERK	
?	L	30/-	S. (21), cl, 22/-	D. (24), newsagent, 6/-; S. (26), L, 25/-; S. (24), L,
53	L	22/-	S. (18), cl, 16/-	21/-; S (20), L, 20/-
43	L	20/-	S. (18), cl, 10/-	S. (16), L., 8/-
43	L	?	S. (17), cl, 14/-	
30	Milkman	24/-	S. (16), cl, auctioneer ?	
70	Night watch-man	25/-	S. (20), cl., 20/-	
			II. UNSKILLED TO SKILLED.	
63	L	18/-	S. (38), stoker, 30/-	
38	L	24/-	S. (17), motor engineer, 17/-, D (16), f cutter's appr, 4/-	S. (13), grocer's boy, 4/-
46	L.	21/-	S. (22), wiredrawer, 45/-, D (17), weaver, 14/-	
50	L.	25/-	S. (22), bricksetter, 38/-; D. (18), shop asst, 10/-, S (15), driller, 6/-	S. (22), l., 20/-; D. (15), bottle-washer, 5/-
45	L.	20/-	S (19), railway fireman, 21/-	
69	L.	20/7	S (22), clogger, 20/-	D. (20), f. cutter, 11/-; D. (16), f. cutter, 7/-
50	L.	27/-	S. (22), fitter, 34/-	
45	L.	21/-	S. (18), overlooker, 18/-	

WARRINGTON—CHILDREN IN HIGHER SOCIAL GRADE—continued

Father			Children in Higher Social Grade, stating relationship, age, occupation, and wage.	Other children, stating relationship, age, occupation, and wage.
Age	Occupation.	Weekly Wage.		
68	Carter . . .	25/-	S. (38), smith, 30/-	
50	,, . . .	25/6	S. (25), moulder, 30/-; S. (23), moulder, 30/-; S. (20), fitter's appr., 13/-	

III. FATHER AND SON SKILLED, BUT LATTER IN BETTER POSITION

50	Puddler . .	55/-	S. (24), insurance agent, ?	S. (22), soap cooler, ?
45	Painter . .	27/-	S. (22), filesmith, 35/-; S. (19), printer's appr., 14/6	D. (18), soap packer, 14/-

IV. UNSKILLED TO APPRENTICE

40	L.	22/-	S. (16), baker's appr., 6/-	
42	L.	23/-	S. (15), tinsmith's appr., 7/-	
40	L.	25/-	S. (16), moulder's appr., 9/-	
36	L.	24/-	D. (14), spinner's appr., 2/6	
45	L.	21/-	D. (15), mackintosh maker's appr., 4/-	S. (13), casual, 5/-; D. (22), f. cutter, 12/-; S. (18), steel worker, 12/-
45	L.	20/-	S. (18), cooper's appr., 12/-	S. (20), casual, 18/-
48	L.	21/-	S. (16), wiredrawer's appr., 8/-	S. (14), L., 5/-; D. (18), soap wrapper, 8/-
45	L.	27/3	S. (18), wiredrawer's appr., 12/-	S. (27), L., 21/-; S. (24), L., 21/-; D. (20), winder, 7/-; D. (13), bobbin filler, 5/-; D (16), f. cutter, 5/6

40	L.	27/-	S. (18), moulder's appr., 10/-; S. (16), fitter's appr., 23/-; S. (21), tinsmith,	S. (13), asst. L., 6/-
48	L.	30/-	driller's appr., 6/-; 38/-	D. (14), casual, 4/-
42	L.	25/-	S. (16), moulder's appr., 10/-; D. (14), shop asst., 5/-	

V. SKILLED TO CLERK

58	Moulder	35/-	S. (25), cl., 25/-; S. (23), cl, 25/-	S. (22), L., 22/6; S. (20), painter, 33/-
50	Wireworker	35/-	S. (17), cl., 13/-	
54	Furnaceman	42/-	S. (14), cl., 6/-; D. (19), typ., 8/-	D. (20), shop asst., 11/-; D. (15), •tailoress's appr., 2/-
50	Wiredrawer	45/-	S. (22), cl., 24/-	
45	"Cutter down" Army Pensioner	54/—	S. (15), cl., 8/-; S. (26), cl., 30/-; D. (30), P.O cl., 25/-; D. (23), P.O. supervisor, 20/-; D. (19), P.O. telephonist, 10/-; S. (17), bank cl., 5/-	
66		—		
56	Wiredrawer	?	S. (22), cl., ?, D. (24), teacher, ?	D. (17), toolworks, 9/-
50	Bricksetter	35/-	S. (17) cl., 14/-; S. (14), reader in printing off., 11/-	
43	Stoker	25/-	S. (15), off. boy, 7/-	

VI. CLERK TO MERCHANT

70	Secretary	£200 per ann.	S (35), silk merchant, ?

WARRINGTON—CHILDREN IN LOWER SOCIAL GRADE

| Father. | | | Children in Lower Social Grade, stating relationship, age, occupation, and wage. | Other children, stating relationship, age, occupation, and wage. |
Age	Occupation.	Weekly Wage		
			I. CLERK TO UNSKILLED	
61	Cl.	30/-	S (32), L., 26/-	D. (27), typ., 18/-
			II. CLERK TO SKILLED	
49	Cl.	30/-	S. (21), blacksmith, 35/-	
30	Cl.	25/-	D (?), warper, 15/-	
48	Cashier	60/-	S (15), wiredrawer, 4/-; S. (21), wiredrawer, 28/-; D. (18), shop asst., 9/-	
			III SKILLED TO UNSKILLED	
63	Wiredrawer	35/-	S (38), L., 23/-	S. (22), wiredrawer's appr., 15/-
54	Foreman stoker	34/-	S. (16), L., 7/-	S. (25), blacksmith, 32/-; S. (24), basketmaker, 26/-
70	Property repairer	?	S. (30), L., 24/-	
48	Puddler	40/-	S. (20), L., 23/-	D. (19), f. cutter, 10/6
62	Toolmaker	19/-	S. (26), L., 20/-	S. (16), appr roll turner, 6/-;
?	Foreman	32/-	S. (19), carter, 18/-	D. (21), dressmaker, 14/-
?	Brakesman	28/-	S. (22), L., 22/-; S. (18), L., 18/-	S. (14), winder, 5/-

46	Goods foreman	30/-	S (25), L., 24/-; S. (23), L., 25/-; S. (19), L., 18/-	D. (22), soap worker, 13/-
46	Boilermaker	35/-	S. (23), L., 23/-; S (21), L., 20; S. (20), L., 18/-, S. (14), L., 6/-	
?	Engnedriver	30/-	S (25), L., 25/-	S. (22), roller, 25/-
56	Puddler	39/-	S. (15), L., 7/-	D. (17), pinaforemaker, 5/-;
48	Shunter	32/-	S. (15), L., 7/-	D. (24), draper, 5/-; D. (21), pinmaker, 14/-; D. (19), soap wrapper, 13/-
54	Roller	40/-	S. (18), L., 16/-	D. (21), soap wrapper, 13/-
52	Cooper	35/-	S. (28), L., 28/-	
45	Furnaceman	24/-	S. (18), L., 12/-; S. (16), L., 10/-	
51	Brakesman	42/-	S. (27), L., 27/-; S. (25), L., 26/-; S. (21), L., 22/-; S. (18), L., 16/-	
54	Shunter	27/-	S. (20), L., 23/-	S. (22), bottler, 22/-
62	Wiredrawer	45/-	S. (23), L., 19/-; S. (30), L., 22/-	D. (38), f cutter, ?
59	File cutter	18/-	S (21), ?; S. (19), L., ?	D. (19), servant, 6/-; D. (17), servant, 5/-
60	Puddler	?	S. (21), L., 21/-; D. (15), bottlewasher, 5/-	
67	Tinsmith	?	S. (31), L., ?	

READING—CHILDREN IN HIGHER SOCIAL GRADE

Father. Age	Father. Occupation	Weekly Wage	Children in Higher Social Grade, stating relationship, age, occupation, and wage	Other children, stating relationship, age, occupation, and wage
			I. UNSKILLED TO CLERK	
60	L. . . .	22/-	S. (24), cl., 20/-	
?	L. . . .	21/-	S. (25), cl., ?	
43	Seedman's asst.	?	S. (16), cl., 10/-; D. (23), cl., 10/6	
45	Tinsmith . .	23/-	S. (18), cl., 12/-	S. (17), fitter's mate, 9/8
?	F. . . .	22/-	S. (15), cl., 7/-	
?	F., sorter .	?	S (17), library asst., ?	
?	Bricklayer .	?	S. (27), cl., ?; D. (22), shop asst., ?	
?	,,	?	S. (?), cl., ?; D. (18), nurse, ?	
			II. UNSKILLED TO SKILLED	
?	F. L. . .	21/-	S. (19), printer, 11/-; S. (16), plumber's asst., 5/-; D (25), dressmaker, 14/-; D. (21), advertising, 11/-	
65	F. L. . .	21/-	S. (26), shop asst., ?	S (25), milk carrier
40	F. L. . .	23/-	S. (17), fitter, 10/-	S. (15), errand boy, 5/-
60	F. store .	23/-	D. (18), bookbinder, 8/-	
45	F. L. . .	20/-	S. (20), printer, 8/-	
56	F. L. . .	22/-	D. (20), draper's asst., 13/-; D. (15), dressmaker's appr., 2/-	
44	Cellarman .	22/-	S. (19), printer, 17/-; S. (18), draper's appr., 10/-	
63	Bricklayer .	?	S. (?), postman, 31/-	
68	L.—gas works	23/-	S. (35), painter, 32/6	

III. UNSKILLED TO APPRENTICE

		FATHER		
50	F.	22/-	S. (?), printer's appr., 8/-; S. (?), coach-smith, 25/-	D. (15), service, 3/-
?	L.	24/-	S. (21), printer's appr, 13/6	D. (17), packer, 7/-; D. ('15), packer, 6/-
53	Warehouseman	22/-	S. (17), printer's appr., 7/-; D. (23), bag maker, learner, 6/6	D. (14), tailoring, 3/6
?	F.L.	22/-	S. (16), moulder's appr., 8/-	
56	F.L.	22/-	S. (14), carriage builder's appr., 3/6	
?	F.	22/-	D. (14), dressmaker's appr., 1/-	D: (14), odd jobs, 2/-, and learning telegraphy
40	Under-guard	23/9	D. (16), dressmaker's appr., 6d.	
*	F.	25/-	S. (18), grocer's appr., 6/-	D. (20), "stitcher," printing, 8/-
45	Packer	23/-	S. (19), appr., 11/-; D. (16), dressmaker's appr., 2/-	

IV. ... AND CHILDREN SKILLED, BUT LATTER IN BETTER POSITION

		FATHER		
55	Gardener	22/-	S. (22), shop asst., 27/-	D. (?), service, 8/- ?
54	Saddler	24/-	D. (25), teacher, ?	D. (30), dressmaker, ?

V. SKILLED TO CLERK

?	Guard	27/-	S. (19), asst. to private secretary, 15/-	D. (18), bookbinder, 6/6; S. (16), shop asst., 7/-
?	Baker	25/-	S. (14), off. boy, 5/-	
40	Gardener	25/-	D. (15), cookery class, 4/-	
36	,,	22/-	S. (14), cl., 5/-	
?	Carpenter	34/-	S. (14), cl., 5/-	
50	Solderer	24/-	D. (?), cl., about 10/-	
?	Salesman	30/-	S. (18), cl., 20/-	
?	F., Baker	25/-	S. (18), cl., ?	
?	Carpenter..	40/-	S. (18), cl., 13/-; D. (17), shorthand typ., 6/-	S. (16), shop asst., 7/-; D. (22), tailoress, ?
?	Joiner	?	S. (?), cl., ?	S (?), porter, ?; D. (?), tailoress, ?